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JANUARY 1923

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General Business Conditions—

And 1923?

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He must have before him at all times complete and unbiased information as to the trend of business conditions.

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Steel and Metal DIGEST

VOL. 13 JANUARY 1923 NO. 1

THE BUSINESS SITUATION

There is much of encouragement in the business situation at the beginning of 1923. Progress was made in industrial affairs in the second half of 1922 but the future holds much in doubt. It is difficult to join whole-heartedly in the chorus of optimism which has been sung so loudly and so frequently of late, but it is unpleasant to strike a discordant note in the general harmony.

Yet the public is too prone to listen with credulity to the "sweet toned voices of illusion" and it therefore seems wise to counsel caution at least in making new ventures and to suggest husbanding resources while they may be husbanded. It is equally wise, however, to be alert to take advantage of opportunities which harmonize with fundamental conditions.

Large Trade Volume.

The volume of business in 1922 was large and the volume of traffic was heavy with the outlook for the first quarter of 1923 satisfactory so far as volume was concerned. If this were all, there would be no misgiving concerning the future but net earnings of not a few manufacturing industries and transportation companies tell another story.

At the moment the evident strong tendency toward a renewal of inflation—inflation of wages, inflation of costs and manufacture and inflation of prices—is a danger signal. The grave political situation abroad is another factor charged with explosive elements which may play havoc with industry and trade if not handled with extreme care.

Farmers' Position.

Among the most favorable recent developments is the prevalence of better prices for agricultural products which have increased the purchasing power of the farmer and in turn have stimulated trade and general merchandise and promoted industrial activity. The value of the United States 1922 crops was $1,800,000,000 larger than in 1921, according to Government estimates, although prices realized were not all that were expected in view of the pressing needs of Europe. Impoverished people, however, must economize, having little or no gold with which to make purchases and being denied an American market—because of our high tariff wall—for many of the goods Europe has to offer in exchange for our raw products.

Labor Supply.

It is pointed out that domestic manufacturing industries generally are employing as much capacity as the labor available will allow but this very fact carries within it the seeds of inflation, as any effort made to expand further would bring demands for higher wages because the channels to increase labor supply have been obstructed by legislation. Higher costs of production follow higher wages and the increased burden is passed on to the consumer in higher selling prices which, increasing costs of existence, after a while forces economy more or less drastically. Then follows contraction in trade and painful readjustment until reaction equals action. At present the upward swing is passing into the danger zone.

Interdependence.

Independence of the various branches of trade and industry is well established and the law holds in the international as well as in the national field of operation. Europe is especially dependent upon this country for cotton, wheat and copper and to a large extent the amount of these commodities exported determines the prices current in the United States.

Under normal conditions, Europe takes about half of our cotton crop and about half of our refined copper production. Her takings of other American raw products, while relatively smaller, are important enough to strongly influence prices here, thus determining the amount of income of the farmer and the mine operator. In turn the purchases of the agriculturist and the mine operators have an important bearing upon other lines of industry at home.

Reparations.

Germany takes about 35% of our copper exports and the fixing of the German reparations therefore is vital to continued liberal copper sales to German consumers. The German reparation question overshadows all else of an economical as well as of a political nature. The present outlook is most serious. The coercive method adopted by France has not improved the situation but it is feared may bring Germany nearer to chaos, increasing the political tension in Europe and temporarily eclipsing the Turkish situation and the Russian Soviet menace. It is wise, however, to suspend judgment. It is a time to exercise cool patiences.

Some comfort may be taken, however, in the fact that throughout Europe, with the exception of Germany, developments have been constructive in the last year and further progress both political and economical, is to be expected if Germany's ruin is prevented by restraining too precipitious action of France and extension of patience in collecting from an insolvent debtor. Austria has been saved from complete collapse and been given a new lease of life by cooperation of other governments. Poland is finding itself in bringing her farming districts into cultivation. Social disorder in Italy has almost disappeared after the people have turned with vigor from socialism and communism which threatened to paralize industry.

British Position.

England made most substantial improvement in the last year. Her stronger international status is made evident by the remarkable recovery in sterling exchange. The British Government is still paying unemployment doles at the rate of $500,000,000 a year which is substantial evidence that home industries remain in an unsatisfactory condition. The general tendency, however, has been and still is toward improvement. The recuperation in Great Britain is shown by the fact that exports are now 70% of the pre-war volume. England's textile industry has revived although unable to hold all the gain made in 1922. Shipbuilding, which is depressed in the United States, is recovering more rapidly in Great Britain. The British steel industry has gained decidedly.

Steel Iudustry.

In the United States the steel industry enters 1923 with a momentum sufficient to carry producing plants forward at a 75% rate and with assurance of further substantial orders from railroads, railroad equipment manufacturers, oil companies, fabricators, and makers of agricultural machinery and automobiles. There can be small doubt that, so far as volume is concerned, the future outlook is encouraging, at least for three months and possibly more. The discouraging feature is that, with increasing cost of production, selling prices are being gradually raised, which if not checked speedily will stop buying and gradually reduce consumption.

Steel plant operations in 1922 averaged about 63% of capacity. Starting the year with the employment of 45% of capacity, there was a steady gain in output during the first half of the year with a falling off in the third quarter and a most substantial recovery in the last quarter. The industry as a whole ended the year utilizing 75% of capacity. The Steel Corporation did relatively better than independents, rising from 47% in January to 81% in December to recede temporarily in the last

week of December, and today is operating at the highest rate since December 1920.

Steel Consumption.

Taking the industry as a whole, production of ingots and castings last year was 73% larger than in 1921, but with the exception of the latter year, it was the smallest annual production since 1915. Of the 25,000,000 tons of finished products produced last year, about 5,000,000 tons were purchased by the railroads, either directly or indirectly; 2,500,000 tons went into the manufacture of automobiles; 2,000,000 tons were consumed in constructing buildings and bridges; nearly 1,200,000 tons went into the manufacture of tin containers, about 1,600,000 tons were needed to satisfy the requirements of oil companies 1,250,000 tons were taken by manufacturers of agricultural machinery, and 2,800,000 went into wire products.

The amount of steel which went into bridges, apartment houses, hotels, commercial buildings and manufacturing plant extensions in 1922 was the largest of record and 1923 begins with very bright prospects so far as tonnage is concerned. The great bulk of the orders taken in 1922, however, was not very satisfactory from standpoint of profit. Railroad buying of equipment—cars and locomotives alone—called for 2,000,000 tons of steel. The orders for cars were the largest since 1916 and the orders for motive power were the largest since 1918.

Railroad Equipment.

Evidently the railroads recognize the pressing necessity of providing more equipment to meet the constantly increasing traffic. Vigorous buying of cars and locomotives has continued since the beginning of 1923. More motive power especially is needed to relieve the congestion of freight throughout the eastern district which is now being expressed in railroad embargoes and the threatened closing-down of industerial plants for lack of ample fuel. The open Winter, thus far, has saved the day for manufacturing industries but the immediate prospect for improvement is not very encouraging.

Decrepit railroad equipment did not seriously affect the copper industry last year. The statistical as well as commercial position of the industry today is vastly better than a year ago. At the same time the progress made was not so great as was forecasted in trade reports for many months. Stocks of refined copper were decreased 182,000,000 pounds but there was an increase of 69,000,000 pounds in blister stocks. The gain in United States smelter output over the preceding year was 90% and the increase in refined production—from domestic material—was 47%. Refined production from domestic plus foreign material gained 37%.

Copper Consumption.

Domestic copper consumption increased about 44% and foreign consumption about 15% last year as compared with the preceding year. This is highly encouraging but it is also significant that the percentage of increase in total consumption was less than the percentage of increase in total production; in fact the gain in domestic and foreign consumption together was only 30% as compared with a gain of 37% in refined production from domestic and foreign material combined.

Copper consumption, however, is increasing abroad as well as at home. Considering the large amount of secondary copper derived from scrap, it seems safe to assume that the world's copper consumption last year was in excess of 2,700,000,000 pounds, of which 1,700,000,000 pounds were derived from American sources. It is only when we turn from volume to profit that we find it necessary to be reserved in estimating the future economic situation but even so, there is much of encouragement in business at the beginning of 1923.

MISFORTUNES OF THE TRANSPORTATION ACT

The two great misfortunes of the Transportation Act are that its spirit is not carried out in practice and that it is misrepresented and misunderstood.

As is the case with many things, the future of the railroads depends on public opinion. That is fortunate or unfortunate, according to the diligence with which the public seeks to inform itself

as to the facts and the honesty with which it forms its conclusions.

By "honesty" we do not mean the honesty that restrains one from shop lifting or looting banks because there is a commandment "Thou shalt not steal" but the honesty that makes men run their minds right reaching their conclusions logically from facts and not emotionally from their likes and dislikes.

We do not need to bother much about the first kind of honesty because we can make laws and punish offenders and because public opinion is down on shop lifting and bank looting. But we cannot make laws to enforce right thinking. It is a pity we cannot. It is very unfortunate that we cannot send a man to jail for asserting on the political stump that the Transportation Act "guarantees" the railroads a 6% return. Instead, we send him to Congress. That is the plain fact. It was done at the last election.

The spirit of the act was that the railroads should receive a fair return. The act did not specify what the fair return should be, except that for the first two years rates should be calculated to make a return not less than 5½% and not more than 6%, but it did specify that should a road make more than 6% in any year the excess could not be disbursed. The Interstate Commerce Commission fixed rates intended to return 6%, but what the railroads got in the first two years of the act, to March 1, 1922, was an average of 3.57% a year and even this average included six months of the government guarantee.

This is one point in the misfortune of the Transportation Act, that its spirit is not carried out in practice. Another item in this connection is the conduct of strikers. We pass over the point whether the act makes a strike itself illegal, and stress the point that the act does say "it shall be the duty of all . . . employes . . to exert every reasonable effort and adopt every available means to avoid any interruption to the operation of any carrier **"growing out of any dispute"** whereas strikers, having a dispute, have acted as if their main duty was to prevent operation.

On our second point, that the act is misrepresented and misunderstood, there was misrepresentation by many candidates for Congress at the last election, and misunderstanding when voters elected those men.

There is misunderstanding also when men observe that the railroads have been buying large numbers of cars and locomotives in the past year. A conclusion that the roads are in good condition and have good prospects is erroneous. The prevalance of such an opinion is due in part to the survival of impressions created during many years of propaganda by the "what we want is orders" brigade who, perfectly honest in their intentions, developed in the unconscious mind of many citizens a notion that their individual prosperity and prospects are measured in part by the amount of money the railroads spend. In 1922 the railroads ordered about 160,000 freight cars, over 2,000 locomotives and nearly 2,000 passenger cars. Unfortunately these figures are no proof at all that the financial future of the railroads is provided for. The roads have merely been making a desperate effort to build up an earning power.

There is another misfortune, that while the Transportation Act does not, in actual practice, take care of the railroads, it is going to be attacked with the intention of making room for something worse, and thus the railroads must rally to the support of the act, leaving ground for the false impression that the act is a very good one for them, when in actual fact it is not.

STEEL INDUSTRY PROSPECTS

It has been said not infrequently that one cannot look farther ahead than six months in steel. Such a statement cannot of course be precisely accurate, for certainly one can be sure of conditions for a longer period at some times than at others, and if six months were the longest period the shortest period would be

ridiculously short. The six months rather represents an average.

As to predicting business conditions for long periods ahead, a year or two years or three years, that simply cannot be done with certainty, though one may say that there is a probability, one way or the other. The impossibility of predicting with certainty is due to the fact that markets are made by men, not by materials. The very certainty of appearance would make the development impossible. If men were all certain that great activity were to continue for three years, to illustrate the point, the majority would assume that prices were going to rise during the period, and they would be disposed to advance prices unduly at the outset, thereby bringing about a reaction and shortening the period.

The prediction is now so common, if indeed it is not almost universal, that the steel market will be good for about six months and decidedly otherwise afterwards that the prediction invites a little analysis. Does the prediction really mean that the steel business will be bad in the second half of the year or does it merely mean that one does not know whether it will be bad or good, that while the next half year is clearly defined the following half year is not defined at all? According to the law of chances, if one knows nothing about a thing the chances are five in ten of its occurring. On this basis, the idea would be that there are ten chances in ten of the first half of this year being good and five chances in ten of the second half being good. That is wholly different from predicting that the steel market will be bad in the second half.

While everyone recognizes to an extent that steel conditions do not move precisely as do general business conditions the wide difference is not commonly appreciated. A little essay—perhaps a big one—might be written on the harmful results of catch phrases. "Iron is the barometer of trade" is one of these. People use it without so much as recognizing the difference between a barometer, which foretells what is coming, and a thermometer, which tells what is here. The phrase was coined to indicate that increasing orders for iron or steel indicate that greater business activity is coming, because, to illustrate, structural steel is bought before carpenters and plasterers are employed, and freight cars are bought when the railroads expect greater traffic. Iron is the barometer of trade, but men sometimes talk as if it were the thermometer or measure of trade. There was 45% as much pig iron and steel ingots produced in 1921 as in 1920 but the general volume of business activity did not decrease 55%.

There are three circumstances in particular that separate the movement of the iron and steel market from the movement of general business, and these must be taken into account instead of the course of general business being taken to indicate precisely conditions in iron and steel.

The first is that steel depends partly on the character of general trade, not merely on its total volume. If a million dollars is spent in building highways it means little steel. If a million is spent by railroads it means a great deal of steel. A million dollars spent on dwelling houses means much less steel than a million spent on bridges or skyscrapers.

The second is that from time to time there are wide fluctuations in the stocks of steel or manufactures of steel carried by manufacturing consumers and distributors. The production of steel at mill varies much more than does the actual ultimate consumption.

The third is that physical difficulties have interfered with steel mill operations more or less since 1916, but did not in 1916 and previous years, and the amount of limitation has varied widely. A given demand for steel, in point of tonnage, may leave the mills falling behindhand in deliveries or may leave them hungry for more orders, according to how many strikes there are or how much transportation disability or how much fuel shortage there is. This is a new condition, not existing before the war. It was a perfectly true statement before the war that steel prices could not be expected to advance at all until after the mills had reached at least an 80% operation, and perhaps one might have said 85%. In 1922, on the other hand, steel prices recorded all their advances, averaging more than $10.00 a ton, without even reaching an 80% operation.

THE NEW YORK METAL EXCHANGE

By J. H. Lang, President

The aims and objects of the Metal Exchange, its past history and present situation are so clearly set forth in the "foreword" of the new book of rules and contracts just published, and the benefits and advantages of a broad, free and open market for metals are so clearly stated, as to make it difficult to further enlarge on the subject. Opposition to an Exchange rests generally upon misconception of its proper functions and the service it is intended to perform. Once these are fully understood and employed it is capable of being of the greatest possible assistance to the trade. A canvass of the situation is said to show that consumers are more favorable to Exchange trading than producers. A certain number of producers own the mines from which the metal comes, they smelt and refine it themselves, and indeed a movement which began in the lead industry seems now to be spreading into copper, and to a certain extent also into zinc, a movement to concentrate the whole business of mining, smelting and manufacturing under one control; to integrate the industry from producer to consumer, much as the steel industry is integrated. It is easily conceivable that concerns in this position do not feel the need of an Exchange. However, the general attitude of producers when not favorable is one of indifference rather than opposition.

In the last analysis the success of the Exchange depends upon whether or not there are a sufficient number in the trade who want it and who will cooperate in sustaining it. Those in favor of it contend that the value of an active Exchange is demonstrated every day in London and that a large part of the business done in London comes from America, showing the need of a similar institution here. A good Metal Exchange in New York would supplement and not supplant London. It would broaden the market for metals all over the world, and draw business to New York from all the rest of the world the same as the London Metal Exchange draws business from all other countries to London.

The reasons generally assigned for opposition to an Exchange are that it would attract to itself interests in no wise related to the business, whose operations would cause a fluctuating market and which might indeed "manipulate" the market to the loss and detriment of legitimate interests in the trade; that it would militate against the stability of the market; that it would destroy the personal contact now existing between producers and consumers, and disrupt the friendly relations thus established and interfere with the orderly flow of metal from one to the other such as now takes place. This latter argument is of course based on an entire misconception of the functions of an Exchange, which would not interrupt or interfere with present methods of doing business, but would simply add to existing facilities to the great advantage of both producer and consumer. No exchange for any commodity could or does live on a producer-consumer business, but helps to furnish both at all times a real market in which to deal, instead of the merely nominal markets which now often exist. We may and do have stable markets at present but the stability is often more apparent than real, an artificial stability, the end of which is disastrous for all concerned and infinitely more harmful than the most erratic fluctuations which would at least substitute a gradual transition of the market from one level to another, in place of the sudden shifts of values with almost no business such as now frequently occur, and against which buyers and sellers are alike without protection. Manufacturers and dealers, and as a matter of fact producers as well, are often involved in an inextricable position and subject to severe loss, even to the point of bankruptcy of an otherwise prudently and conservatively managed business, through inability to change their position in harmony with changed conditons. The Metal Exchange would remedy this.

The largest business is merely an aggregate of small orders, which in boom times accumulate in such volume as to be difficult to cover, as things are, except by heavy forward buying, always an extravagant and often a difficult thing to do, and from some aspects an unsafe thing to do, certainly a demoralizing thing to do so far as the market as at present constituted is concerned. And when the tide turns and there is a sudden drop in business the manufacturer finds himself ground between the upper

and the nether millstone of purchase contracts which he must perform on the one hand, and cancellation or postponement or entire absence of orders on the other. An active Metal Exchange would serve as a governor and balance wheel for situations of this kind, a species of insurance to assume and distribute the risks, a sort of shock absorber for the business. Imagine a securities market or a cotton or grain market without the stock and produce exchanges of the country and you have a picture of the metal markets as they exist today. The whole structure of modern business, and the financing of raw material from sources of supply through various processes of manufacture into final consumption, is based upon the liquidity and convertibility of the commodity at every stage. The lack of this intricate and delicate and yet simple and sound machinery, so far as metals are concerned, made itself glaringly apparent in the crisis of a year or so ago. An active Metal Exchange would supply this machinery.

A Metal Exchange like any other exchange promotes and facilitates trading and thereby possibly encourages speculation by making it easy to speculate. There is much misuse of the word speculation in the sense of gambling. In this latter sense it is generally used by those opposed to a Metal Exchange. Speculation is merely an attempt to forecast the future and is a proper and legitimate, in fact a necessary exercise of one of the most elemental attributes of the human mind. We are all of us speculating all the time. When we buy our Winter's coal in the Spring because we think it will be cheaper, or more certainly procurable than in the Fall, we are speculating. It is safe to say that the element of speculation enters into nine-tenths of our daily transactions. The producer speculates when he signs an agreement with his men to produce metal in advance of its sale, or sells it in advance of its production.

While opposition to Exchange trading is often based on the assumption that an Exchange is desired by and would benefit only those who wish to gamble in metals, and consequently that the instability and fluctuating character of the markets would be emphasized by the existence of Exchange trading, as a matter of fact directly the contrary would be the case. A large part of Exchange business comes from "hedging" transactions which are the direct antithesis of speculation and gambling. This is well illustrated by the story of the sugar refiner who bought large quantities of raw sugar at the top of the market in 1920. It was suggested to him that he hedge the transactions by sales of futures, to which he replied, that he was "a sugar refiner and not a gambler." Afterwards his bankers held a post-mortem on him. As a matter of fact he was one of the biggest gamblers in the world only he did not know it, and in the metal trades there are many laboring under the same delusion as this unfortunate sugar refiner. Bankers in agricultural communities loaning money on farm products often insist that the loans shall be hedged by sales for future delivery of the wheat, corn or cotton as the case may be, on the produce exchanges of the country. Protection during the interval between the production or purchase and the manufacture or sale of goods is the object of a hedge. It is an insurance against market risks, but unfortunately an insurance not procurable at present by the metal trades in this country. An active Metal Exchange in New York would provide this facility. A large part of the business of the London Metal Exchange arises from hedging transactions.

Closely related and of scarcely less importance is the improvement which active Exchange trading would immediately effect in the standing of metals as collateral security. This point has been particularly looked after by the Metal Exchange in its new rules. By very careful specifications as to warehouse certificates, brands, qualities and deliveries, and the standardization of same and of the Exchange contracts, they have thrown every possible safeguard around the business. Given an active market insuring their liquid and convertible character, the warehouse certificates for copper, tin, lead and zinc will take rank immediately with the highest class bank collateral. The resultant benefit to the trade would be beyond computation. America makes and unmakes the metal markets of the world as certainly as the amount of fuel fed under a boiler regulates the steam pressure. Nevertheless we persistently refuse to have any of

these markets at home, but insist on conferring all their benefits and advantages upon foreign countries. The New York Metal Exchange would put us on an equality in this respect.

Another important office an active Metal Exchange would perform would be to establish an equitable basis for ore settlements, now a constant subject of dispute. Likewise it would remove the difficulty referred to by an official of one of our largest smelting companies, when he said:

> "There are periods when we cannot sell metals at as good a quotation as that paid on the date at which the ore was purchased.
>
> "Market prices for metals are, at times, subject to sudden and sharp variations which may wipe out an anticipated profit. Output is stimulated in times of high prices and smelters stocks are increased. Experience has shown that the market drops more rapidly than it rises, and the chance of loss on large reserves of metal or even on metal in transit is always present.
>
> "Recent events have demonstrated that at the end of a boom price period the smelter is left with a lot of material acquired at high prices which must be sold at a loss."

Through the use of Metal Exchange facilities ore could be bought and metal sold simultaneously or hedged, and the manufacturing profit of the smelter, i.e. its treatment charge, would thus be automatically fixed and conserved and the element of market risk eliminated; likewise the possibility of dispute, because the basis of purchase would be the price at which sales were made and either party feeling himself aggrieved would have the remedy in his own hands. With a Metal Exchange discharging its proper functions, high prices at which nothing could be sold, or low prices at which nothing could be bought, which are now a crying evil in the trade, would be impossible. Such conditions do not exist on the Stock Exchange or on the London Metal Exchange. The broader the market the quicker will prices find their proper level based on supply and demand, and the shorter the periods of hesitation and uncertainty. There is no uncertainty about prices in London, or whether or not business can be done thereat. It is a safe assertion that our people are better advised about prices of metals in London than in New York. Certainty and publicity in this respect would benefit both producers and consumers and be of the greatest possible value to the trade, but they can be attained in no other way than through a Metal Exchange.

Briefly stated the advantages of an active Metal Exchange may be summarized as follows:

1. It will remove uncertainty as to prices.
2. It will supply at all times a ready market.
3. It will save time, labor and trouble for both buyers and sellers.
4. It will make metals good collateral security for loans.
5. It will make contracts liquid and convertible.
6. It will establish a fair basis for ore settlements.
7. It will furnish facilities for "hedging" and make profits insurable and losses avoidable and thus lessen the hazards at present attending the business.
8. It will standardize contracts and specifications.
9. It will stabilize prices and minimize fluctuations.
10. It will keep at home considerable business now transacted abroad, and furnish employment for American capital and American labor.

In short it will furnish the trade with facilities now lacking and remove handicaps which are a burden to business, and increase our potentiality in the markets of the world. Some say the trade will realize the advantages of establishing a real metal market in this country with all its machinery and power and influence under our own control. The decision as to whether or not we shall have such a market does not rest with any one man or set of men, either producers or consumers. The producer will of necessity sell on an Exchange if he can get better prices there than elsewhere, and consumers will buy on it if thereby they can save money, and both of them will use it for hedging purposes and thus promote the safe and economical conduct of business. Inspection of the new rules and contracts is invited. Copies may be had on application to the Secretary of the Exchange, No. 111 Broadway, New York.

THE OBSERVER'S CORNER

There is a question that has been debated for a long time. It is put in various forms for the purpose of individual discussion, but the general form is: How much of a successful man's success has been due to luck? The matter will probably continue to be debated, because some men think it has been settled one way and some think it has been settled the other way.

As the Observer has remarked in other discussions, all that we parade as the result of logical thought is not precisely what we pretend it to be. Sometimes we reach conclusions partly from emotional influences, to give the expression "emotional influences" a rather broad significance.

It is easy to get at the actual fact in this connection. Take a few cases of debates or discussions and notice what the object of the debater or discusser is. Sometimes there will be a meeting of a board of directors, discussing whether or not a proposed investment should be made. Observe how each man shows a desire to help reach the best conclusion. The individual will set forth his own ideas and arguments as clearly as he can, but he listens, not only attentively but keenly, to what the other members of the board have to say. Contrast that with most of the discussions one hears. The exception tests the rule. More commonly a man engages in a discussion merely with the object of bringing the other man around to his own opinion. Of course, he thinks his opinion is right, but the main point is to force the opinion upon on the other man. He would not be elated if the other man should prove him wrong, yet why should he not be, when thereby he has learned something?

The object in endeavoring to convince the other person may, however, not be egotistical. The object may be to do the other person good. That is the point to which the Observer wished to work around. Much of this discussion about "luck" is, upon the last analysis, found to be in the nature of preaching, intended to make people try harder to succeed. The object is not to ascertain the bare fact, is luck an important cause of men succeeding or is it an unimportant factor.

A very simple test can be applied. What is the familiar argument used when the object is to show it is not luck? The argument is that the man worked hard, not that he was born bright. Now, we know perfectly well that being born bright has a great deal to do with it. Whenever we consider matters dispassionately, not being engaged in an effort to prove something to somebody, we recognize that natural ability is very important indeed. We see a great many people working hard, i. e., reasonably and decently hard, without achieving any particular success. But when we are arguing, particularly with young men, we always insist that hard work is practically the whole thing. This simple test uncovers the real motive, the emotional influence.

We can all think straight if we want to. It is all a question of wanting. If we set out to arrive at a rational conclusion in this matter, instead of having for our object the cajoling of somebody into working harder, we can see that luck has a great deal to do with the success of individuals.

Along one line of study of this matter, consider what a wide variety of things there are to be done in the world, requiring many varieties of skill or ability. Our country alone has over three million square miles in it, and more than a hundred million people. Is it reasonable to suppose that every man has a chance to get into the precise line to which nature suited him? Don't say the man can go to his opportunity. That is not work, but natural ability, and surely when a man sets out to find his opportunity with three million square miles over which to hunt the element of luck must surely enter.

Or, take another line altogether. When there is a distinctly successful man he is occupying some particular or peculiar position. There are tens of millions of other men in the country. Suppose a million or so of them were able to do the same thing this man does, would he be so successful? Try it in cornering the wheat market or the stock market or in building steel mills. Is it not the man's luck that there were not another million men, or a dozen, or even one,

trying to do the things by which he succeeded?

Make it concrete. Here is a great engineer or president of a corporation, drawing a six figure salary. A magazine writer is likely to take him up, show how he is "worth" the salary to the corporation and how he "got there" by hard work—no luck. One may swallow the argument or not. Usually these magazine stories are so written that one does swallow them, but the Observer insists that it was lucky for the man there were not ten other men just as good as he when the board of directors came to make the selection. There would have been such competition that there would have been no need for any six figure salary.

The point the Observer has been trying to work up to is this. When a man gets a $25,000 or a $50,000 or a $100,000 job he is in nearly every instance getting no more than he deserves and it is better for those who pay him the salary to have him than not to have him. Let us take off our hats to the man. But shall we take off our hats to the board of directors or the organization that employs him at the salary? As a rule, not. In most cases there has been something wrong with the organization. It ought to have gotten its affairs in better shape so as not to be dependent upon one man in all the tens of millions of men there are. It ought to have paid more attention to selecting prospects and training them. The Observer makes the prediction that organizations are going to pay more attention to this point in future. They will get more good men and on account of competition they will not have to pay such towering salaries.

NEEDS AND PROSPERITY

In the days when the bootblack was more conspicuous than the shoe shining emporium the urchins referred to used to solicit trade—"Shine, Sir?" They were not promiscuous in their solicitation but picked out their prospects. The man whose shoes really needed shining badly was generally allowed to pass unnoticed, the approach being made rather to the man whose shoes had obviously been shined very recently. Human nature is pretty much the same the world over, and these bootblacks understood men. Was the best prospect the man whose shoes needed shining the most, not having been attended to for weeks or months, or the man whose recent shine showed that he was both able and willing to pay for a shine now and then?

The bootblack had to think straight. Otherwise he could not make a living. We ought to think straight. When we talk of "prosperity" which we are doing most of the time, we should think of it in a practical way. Commonly we mean making sales. Now, are sales really dependent upon our assumptions as to the "needs" of other people, or are they dependent upon the ability of the people to make the purchases, in other words to pay? In the school of hard knocks the bootblack learned that it was not a question of which shoes needed shining the most but of which owners were most able and willing to pay. As to railroads, the matter hinges not upon how run down they are but of how much money they are making or are likely to make. If railroading is such a poor business that the roads run down year by year the prospects of buying are poor. If railroad conditions are good the prospect of buying is good. As to the farmer. If he is so impoverished that he cannot buy fertilizer and his tools are in bad shape it is not an argument that he is going to buy large quantities of tools. If he has good tools and can make money he will be a good buyer. Leave it to the farmer to think up things he would like to have. Farms being run down and in bad shape is no argument that farmers are going to be heavy buyers.

Needs, in other words, are not the basis of prosperity. Earning power is. Some men's needs are so great that they starve to death. They do not make the best buyers. When workmen are earning—not merely getting—good wages, and when business men are obtaining legitimately—not merely getting—good profits, the basis of prosperity exists. There is no occasion to worry about whether the workman or the business man will have "needs." They will attend to that. What is requisite is that they have a buying power, and a buying power legitimately secured. If the buying power is not legitimate it will not last. If it is it will until something goes wrong and the condition is spoiled.

CAN A LIVING WAGE BE PAID?

Can labor's share of the product of industry be increased? Leaders of labor frequently assert that labor is being paid a mere pittance out of the "value-product" jointly produced by it, by capital, and by that intangible factor known as managerial ability. Sometimes the statements of spokesmen for labor take such forms as that of Basil M. Manley, counsel to various unions, who asserts "American labor has been consistently deprived of its share in the ever increasing productivity of the Nation's industries." In general, labor's champions claim that a proper division of "value-product" would provide very much higher wages than are now paid.

Upon the foregoing assumption, the argument seems to be that labor cannot be expected to exert itself to do a good day's work when it is receiving only a small fraction of the supposed value produced; although it is obvious that when production suffers, costs inevitably increase, and the expense to every consumer is thereby higher. As the cost of living goes up, the purchasing power of wages goes down.

The great trouble has been that the truth as to the division of the "value-product"* has not generally been known. and such figures as have been made public were not the result of impartial investigation, and hence did not command widespread confidence. Where the facts are not known, it is human nature to suspect the worst.

A notable step towards the solution of this difficulty has at last been taken by the formation of the National Bureau of Economic Research, in whose directorate are included representatives of organized labor, economists and statisticians of the highest repute, as well as men associated with manufacturing and other industry. The National Bureau of Economic Research undertakes the painstaking and impartial study of problems which are considered of vital public importance. And in its recent publication of "Income in the United States," (Harcourt, Brace & Company), it has given to the public the findings of its first research.

The data in this book have a direct bearing upon the question we are considering, showing for instance that the payroll absorbs on the average 71% of the net "value-product" of all mines, factories and steam railroads in this country. Rentals, royalties, interest to bondholders, dividends upon stock, and profits of management, all combined do not equal quite half the amount paid to manual and clerical help.

Before taking up in more detail some of the data in this valuable book, it will pay to take the time to look back and trace, very briefly, the history of advancement in living conditions. From the earliest recorded history—about seven thousand years ago—down to nearly a century after the landing of the Pilgrims, there was but little betterment of living conditions of the masses. Throughout this long stretch of time there had been almost no progress in methods of production.

Since the inception of the industrial revolution, there has been a vast improvement in the living conditions of ordinary men. Toil has been rendered less arduous, and the hours of work reduced. At the same time, the purchasing power of wages has advanced. The daily wages for English masons and carpenters between the years 1350 and 1650 averaged less than the price of one-third bushel of wheat; but by 1882 their wages would buy four times this quantity; and at the present day the wheat equivalent of such artisans' wages is higher still.

The standard of living of ordinary men has been raised greatly during the past century and a half, and indeed during the past forty years, especially as to clothes and housing. The general introduction of modern heating and plumbing has revolutionized living conditions, almost within a generation. So rapidly have standards of living advanced that our grandparents would be literally astounded could they suddenly look up from the ideals of 1850 to those of 1920.

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* Net value-product does not include cost of raw materials, supplies, and services received from other industries. It is the value added to cost of materials, etc., by the industry in question.

This new status, this modern life of conveniences and comforts and luxuries, undreamt of at the time of the American Revolution, this vast amelioration in the living conditions of all classes; all this has required the accumulation of a vast amount of capital, and its investment in productive machinery. Scientific knowledge and inventions do not of themselves raise the standards of living in a country, until accumulated capital makes possible their utilization.

As a matter of fact a saving of 10 to 20% of the wealth produced annually has been used for increasing productive machinery, and has been an indispensable condition for the progress we are considering. This annual saving may be looked upon as a tax on each generation in order that the next may enjoy far easier conditions of life than those it would face if practically all the wealth in the preceding generation had been consumed as it was produced. The distribution of ownership of this saved up capital is clearly a matter of less importance than the fact of its actual accumulation, and use in providing ever improved and enlarged machinery of production.

And now returning to the question of distribution of the "value-product" of industry, let us see what the actual distribution of National Income was in the year 1918, and how we can estimate the saving of, say, 12% thereof. The following table, showing income distribution among recipients in 1918 is taken from data presented in "Income in the United States."

Distribution of Total National Income Among Personal Income Recipients in 1918

Classified in groups according to income received	Recipients per cent.	Income per cent.	Per cent. of total income above or below mean distribution		Per cent. of mean distribution
			Below	Above	
Less than 0	.53	.22	.75	...	
0 to $500	4.87	1.18	3.69	...	25
$500 to 700	9.85	3.91	5.94	...	40
$700 to 900	15.12	7.88	7.24	...	54
$900 to 1,200	24.14	16.38	7.76	...	67
$1,200 to 1,500	17.50	15.17	2.33	...	86
$1,500 to 1,900	12.14	13.16	...	1.02	109
$1,900 to 2,500	7.20	10.05	...	2.85	140
$2,500 to 3,500	4.29	8.07	...	3.78	190
$3,500 to 6,000	2.74	7.87	...	5.13	280
$6,000 to 11,000	1.04	5.24	...	4.20	500
$11,000 to 30,000	.45	4.90	...	4.45	1090
$30,000 to 100,000	.11	3.33	...	3.22	3000
Over $100,000	.02	3.08	...	3.06	15400
Total	100.00	100.00	27.71	27.71	

Arithmetical mean of all incomes for 1918 (omitting enlisted soldiers) = $1,543.

The grouping in the above is of course arbitrary, but it gives a fairly symmetrical distribution of recipients, about that group composed of the largest number. It is noteworthy that the group which, as a group, received the largest amount of the national income in excess of the per capita average (5.13), is the group receiving incomes from thirty-five hundred to six thousand dollars per year. (The income here considered includes that from all sources, a proper allowance being made for the fair rental value of homes owned by recipients.) It is also interesting to observe that the excess income of the class receiving over one hundred thousand dollars is, in its total (3.06), less than that for the group of twenty-five to thirty-five hundred dollars per year (3.78). It is similar to the case of a great continent, where the mountain peaks appear very

high, but their volume would not go far towards raising the average level of the plains, if uniformly spread over all.

Based upon the foregoing table we may make the following exceedingly rough estimate as to the **saving** of personal incomes, divided into groups according to amount of income received, for 1918.

Income group	Est. % of Income Paid as Income Tax	Saved	Estimated Saving in Dollars
Up to $1,200	0	1	$180,000,000
$1,200-$1,500	.1	2	187,000,000
1,500- 1,900	.1	4	334,000,000
1,900- 2,500	.5	6	372,000,000
2,500- 3,500	1.0	8	399,000,000
3,500- 6,000	1.75	12.5	607,000,000
6,000-11,000	3.0	20	647,000,000
11,000-30,000	6.0	33.3	1,008,000,000
30,000-100,000	14.0	36	740,000,000
Over $100,000	40.0	40	760,000,000
Total savings from personal incomes			$5,234,000,000
Add undivided corporate surplus			1,700,000,000
Total est. savings 1918..			$6,934,000,000

Based on a total national income of 61.7 billion dollars this estimated saving is 12¼%.

It is probable that under conditions as they existed before the war the annual saving was more nearly 16%. This was due partly to the fact that the income tax did not absorb so large a proportion of big incomes, and also that a larger proportion of the net "value-product" of corporations was reserved as profits than in the year 1918, in which 77.3% of the total "value-product" went for wages and salaries.

Returning now to the division of the "value-product" of industry, let us consider the average for all mines, factories, and land transportation lumped together. The yearly averages are set forth in the following table, which give much food for thought, showing as it does how small, on the average, the margin is for application to interest, dividends, rentals, royalties and profits of management.

Per Cent. Division of Net Value Product.

Year	Manual and Clerical Employees	Salaries of Officials	Interest on Bonds, Dividends on stock, rentals, royalties and profits of management
1909	63.4	5.3	31.3
1910	63.5	5.3	31.2
1911	66.5	5.8	27.7
1912	66.0	5.6	28.4
1913	66.6	5.4	28.0
1914	67.4	6.4	26.2
1915	65.5	6.0	28.5
1916	61.8	4.9	33.3
1917	64.0	4.9	31.1
1918	61.9	5.4	32.7
Average	65.7	5.5	28.8
Total payroll	+ 5.5 = 71.2		

The division of net "value-product" given above represents "going concerns." If the losses of enterprises that fail to succeed or go into bankruptcy could be known and deducted net returns to capital and management would be somewhat reduced. But however that may be, the above figures are significant as showing that an average of 71% of the "value-product" goes for the payroll.

Before proceeding further, let us examine the argument that selling prices outstripped wages during the war period, and that corporations made enormous gains at the expense of the wage-earning classes, who were forced thereby to a lower standard of living. The reliable data given in "Income in the United States" show the average annual earnings of all employees normally engaged in production of mines, factories, and steam railroad transportation, and the weighted averages for the above industries have been reduced to the basis of 1913 prices, so as to represent constant purchasing power per dollar of wage received. On this basis the average annual earnings are as shown below:

Purchasing Value of Average Earnings.

Year	Mines, Factories and Steam Railroads	
1914	$635.50	100%
1915	649.50	102
1916	785.50	123
1917	798.50	131
1918	759.20	119
Six yr. average 1909-14	663.00	104

The above comparison of purchasing power of actual average earnings shows the error in the claim that corporations forced the wage-earners to a lower standard of living. The figures are conclusive in showing wage earnings after 1915 were at a level 20 to 30% above that of 1914, after making due allowance for increased cost of living.

It is of course true that certain classes of labor were not so well paid as those employed by mining, manufacturing and steam railroad corporations. Thus Government employes, and those working for public utilities, as well as those in unclassified industries, and in banking, did not participate in the unprecedented good times which were generally enjoyed by labor.

At last we come back to our starting point, "Can a living wage be paid." Manifestly not under existing conditions, if we are to accept Mr. Jewell's contention that a living wage should be at least $2,636. In the year 1918 the average of all personal incomes (excluding enlisted men) amounted to $1,543. (Including soldiers $1,490.)

The total of all personal incomes in 1918 would have been increased by less than 3% had all corporate surpluses earned during that year been fully distributed. This would have brought the average income up to $1,585, which is the maximum theoretically possible. Thus it is evident that the problem is not one of redistribution, or of "levelling off" of present incomes, but one of increasing the total amount available for distribution.

Then what can be done? Evidently the question really is "Can a living wage be earned?" If it cannot be earned, it surely cannot be paid. Here we should pause to note that a living wage does not mean the same to different ages, nor indeed to different people in the same age. If the standard of what constitutes a living wage would only stay fixed, then eventually we could probably answer 'yes' to the above question.

If the output in all lines were increased, say 25%, for the same wage expenditure, by efficiency in selecting workers for their jobs, by proper training, and by diligent work by all, the cost of living would assuredly drop by a nearly proportionate amount. The converse of this is also true. This is aptly expressed by Rorty in his memoir on "Industrial History," as follows: "The major item (of costs) is wages. Here is where the great gains or losses may be made. If wages remain fixed and production increases prices will fall. If wages remain fixed or rise, and production falls off, prices will rise. The bricklayer who cuts down the number of bricks he lays in a day raises the rent of the weaver's house. The plowman who loafs in the furrough, raises the price of the brick-layer's bread. The weaver who slows the loom raises, in turn, the price of the plowman's coat."

In spite of under-production due to ignorance, sloth and inharmony, a higher level of living will gradually be attained through added efficiency of new inventions and through the wider utilization of those already known; but the trouble will continue to be what it has been in the past, for as fast as general conditions are bettered, and the lot of the less prosperous is thereby improved, (along with that of the rest of society), the ideas as to what constitutes a living wage will also advance, and the problem thus remained unsolved. "Man never is, but always to be blessed."

Not until, through greater wisdom, our people have come to realize more generally that well-being and contentment do not arise from extensive material possesions, nor from vying with each other in matters of dress and show, but on the contrary are largely independent of all such, being more a condition of mind than of body, will a more contented condition exist.

An "unenvious satisfaction in plain ways" would be worth more than a raise of 50% in income to a large portion of our people of all classes.

In the meantime we had best realize that there is no short cut to the millenium, and whoever claims to have found one is deceiving either himself or other people. And finally let us remember everything is comparative, and that our country is so far ahead of others in respect of physical well-being of all its people, that foreigners have remarked that we are d—— well off, only we don't know enough to know it.

TOPICAL TALKS ON IRON

CXVI- Total Production to Date

At the opening of a new year long range views of what the iron industry has done are particularly appropriate. Up to January 1, 1910, the United States made about 390,000,000 gross tons of pig iron. In the 13 years following as much more was made, with a margin of 5,000,000 tons. The iron industry has been so well advertised that whatever it does is likely to be considered wonderful, particularly by those interested in the industry. However, there are other industries that grow. There is copper, as a striking illustration. To January 1, 1910, about 6,340,000 gross tons of copper had been made, while in the intervening 13 years there has been as much more made, plus a margin of 23%, against 1% extra in the case of pig iron.

This is as to production. As to consumption, iron stands farther back relative to copper. Iron rusts, while copper is practically indestructible. Iron, being cheaper than copper, is more readily lost. As to reclamation, copper probably has a distinct advantage over iron.

All told, therefore, it seems clear that there is much less dissipation of copper than of iron. Almost all the copper made is still in service while much of the iron is gone. Therefore, if the requirements of consumption or employment grew apace, production would have to increase more rapidly in iron than in copper. Making allowance for imports and exports would not materially alter the force of the argument.

However, the production of iron has been growing rapidly, despite the fact that iron is outmatched in this respect by copper and some other metals.

It used to be claimed that the production of pig iron in the United States doubled every ten years. If this were an absolute rule, and there was a uniform gain year by year, to make a doubling in ten years, then the production in any ten-year period would be exactly equal to the entire previous production. Mathematically it would be an infinitesimal amount more.

Production of pig iron never did double exactly decade by decade. It followed the general principle, but it had a way of gaining an extra amount in one decade and not so much in the next decade. By making the decades end with the year seven the grouping is such as to make the differences between adjacent decades most pronounced. The following table shows the percentage increase in decades ending in seven, over the preceding decade:

Decade ended	Per cent increase
1867	35
1877	128
1887	113
1897	93
1907	120
1917	57

There is no objection now, and there never has been any objection, to people saying that the production of pig iron doubles every decade. Such talk does no particular harm, but to believe the statement and act on it may cause a man to lose a good bit of money, probably all he has. Some men have argued in recent years, for instance, that as production had not doubled in recent years a "deficit" had accumulated and that this was going to be made up by extra demand in future. Building blast furnaces to meet a demand predicated on this argument would be a somewhat precarious investment. For instance, production of pig iron in the ten years 1908 to 1917 inclusive was, as shown in the above table, only 57% greater than in the preceding ten years, being 284,708,343 tons, against 181,470,757 tons in the ten years ended with 1907. Following the rule slavishly, the ten years beginning with 1918 would be required to make 725,883,028 tons, or four times the production in the ten years ended with 1907, plus a deficit of 78,233,171 tons, making a total of 804,116,199 tons. In the first five years of that decade we have actually made 140,000,000 tons, leaving 660,000,000 tons to be made in the next five years, or 133,000,000 tons a year, whereas the existing capacity is only 45,000,000 tons a year. These figures may be called ridiculously fanciful, but they show where one may land if he wants to act on the rule of doubling. The rule may be interesting and useful in a way, but it cannot be em-

ployed to determine the investment of hard earned money.

With about 785,000,000 gross tons of pig iron made in the United States to January 1, 1923, there has been made about 679,000,000 gross tons of steel ingots and castings. This is what is usually given as "the production of steel." As a matter of fact the ingot is not a finished commercial product, finished rolled steel running only about 76% of the ingot tonnage, while there is scrap made in turning rolled steel into forms of steel for actual use, this scrap together with that made in the steel mill being almost wholly employed in the open-hearth steel furnace, making steel over again. There was really only about 500,000,000 tons of actual commercial steel products made, and this fits better with the 785,000,000 tons of pig iron, leaving a reasonable amount of pig iron for puddling in the old days, before the advent of soft or mild steel, and for iron castings.

There has been made to this time about 55,000,000 tons structural shapes, a relatively new thing in steel, and nearly all of this tonnage is now in actual service. On the other hand, a trifle over 20,000,000 gross tons of tin plate has been made, and scarcely any of this is in service, except the terne plate that is used in roofs.

As to rails, there was a total of about 10,700,000 tons of iron rails made in the old days, and of this tonnage there is scarcely anything left. The old rails were reclaimed for making other things. Of steel rails the production has been about 94,000,000 tons, and more than half of this tonnage is in actual service, perhaps close to two-thirds, while several million tons have been exported. Thus of the steel rails actually laid in the United States the great bulk of the quantity is still in service. Rails wear out rapidly where the traffic is dense, but it is dense only on a small part of the total trackage.

THE ENGINEER IN STATECRAFT.

"In his presidential address before the New York City convention of the American Society of Mechanical Engineers, Dexter S. Kimball, dean of engineering at Cornell, dwelt on the increasing disposition of the engineer to play his part in public life, instancing Herbert Hoover and Governor Hartness of Vermont as conspicuous examples of this new tendency," says the **Electrical World.**

After alluding to the military type and the legal type of political leadership, the first of which had passed in modern democracies and the second of which inevitably harked back to precedent rather than kept pace with change, Dean Kimball said:

"There remain for consideration two other types of mind from which a new industrial leadership may come, namely, the business or financial type and the scientific type. The business type of mind with the aid of counsel of the legal and engineering fraternities has built up modern industry as we now see it. There can be little doubt as to the ability of this type of mind to plan and direct the larger aspects of industry along existing lines. One weakness lies in its apparent inability to appreciate or rather to acknowledge that a new industrial day has dawned in which industry is being viewed more and more as the support of human life and not as a means of producing private, corporate or state profits. If the new industrial leadership comes, therefore, from the business world, the business type of mind, I believe, will have to be greatly modified."

Two Types of Scientific Minds

Dean Kimball then pointed out that future hope rested upon the scientific type of mind. There are two types, he said, one visionary, unpractical, blazing the way for the world by always seeking out new truths "in science, philosophy, religion and what not." The engineering mind, he said, belongs to the other type. That type is interested in applied science and is always practical.

"No one would presume to say that the engineer alone can solve the industrial riddle, but it is clear that he can make a very great contribution to the solution," he added. "But it becomes increasingly clear that hope of a solution rests with the two groups just discussed. Whether the new leadership comes from one field or the other, or from a combination of the two, the problem of universal well-being offers a challenge and a call to duty that the engineer may not refuse. There is good reason to believe he will do his share of work in attaining the ultimate results desired. Already there are significant signs that he has accepted this duty."

OUTPUT OF METALS BY STATES IN 1922

The following are condensed reports covering the output of metals in some of the principal producing states in 1922, according to reports issued by the U. S. Geological Survey.

Arizona.

The value of the gold, silver, copper, lead, and zinc produced by mines in Arizona in 1922, was $65,219,000; the value in 1921 was $29,563,472. A marked increase was made in the production of all metals as a result of the resumption of activities early in the year at the large mines and smelting plants. The total, however, was not unusually large and did not approach the average of the last ten years.

The gold produced increased from $2,930,303 in 1921 to $3,618,000 in 1922 as a result of the increase in gold from the smelting and refining of copper ore.

The mine output of silver increased from 2,469,394 ounces in 1921 to about 4,760,000 ounces in 1922.

The mine output of copper increased from 185,034,194 pounds in 1921 to 418,000,000 pounds in 1922. The value of the output increased from $23,869,411 in 1921 to $56,029,000 in 1922. By May all the large smelting plants except the one at Clifton were active, and most of the copper mines except the Magna had resumed operations. The largest producers of copper in 1922 were the Inspiration, Miami, and Copper Queen mines, followed by the United Verde, Calumet & Arizona, United Verde Extension, New Cornelia, Ray Consolidated, Old Dominion, Arizona Commercial, Iron Cap, Swansea, and Superior & Boston. The International Smelting Co., at Miami, which treats the concentrates from the Miami and Inspiration companies, produced considerably more copper than any other smelter in the State. No smelting was done in Greenlee County, but copper concentrates from the Morenci branch of the Phelps Dodge Corporation were shipped to Douglas for smelting

The mine production of lead in Arizona increased from 6,541,433 pounds in 1921 to 14,080,000 pounds in 1922. The value of the output increased from $294,364 to $802,500.

The Copper Queen mine was the only producer of zinc in Arizona in 1922 and shipped several hundred tons of zinc ore to an eastern smelter.

Colorado

Colorado mines in 1922, produced $6,500,000 in gold, 6,000,000 ounces of silver, 22,000,000 pounds of lead, 3,600,000 pounds of copper, and 24,000,000 pounds of zinc as compared with $6,835,328 in gold, 5,631,657 ounces of silver, 19,660,466 pounds of lead, 4,153,442 pounds of copper and 2,360,000 pounds of zinc in 1921. Average prices in 1922 were $1.00 for silver, $0.134 for copper, $0.057 for lead, $0.057 for zinc, as compared with $1.00 for silver, $0.129 for copper, $0.045 for lead, and $0.05 for zinc in 1921.

The situation in the Colorado metal-mining industry during the first half of 1922 was disappointing, but there was a marked improvement as the year drew to a close, particularly when the November prices for lead and zinc warranted hope for stability of market. There was also increased interest by capitalists in investigation of the industry.

The price of nearly $1.00 an ounce for silver from domestic ores under the Pittman Act was all that kept many Colorado mines in operation in 1922, and the fact that the Government's purchases of silver under this act will probably be completed within the next 12 months give cause for serious thought. The price of lead was low until November, and lead-silver ores depended on the silver content to carry the costs. Until November also there was hardly any available market for Colorado zinc ores, even at the low prices at which they were offered. Joplin concentrate was shipped into the State. Until some signs of encouragement were seen in the zinc market many operators did not feel like spending money in unwatering and clean up mines after long idleness. Fortunately, the workings and mills of some of the zinc properties were kept in repair. Much of the zinc output for 1922, however, came from stocks accumulated from operations in 1920, or from zinc ores removed in 1921 and 1922 of necessity in mining of contiguous silver ores. The Western Zinc Oxide Company's furnaces at Leadville were operated steadily, and the Empire Zinc Company's zinc oxide plant at Cannon City

was reopened in August. The gold mines can hardly be said to have recovered from the depression due to war costs. Many of them remained idle and others worked on a small margin of profit.

Idaho

The value of the gold, silver, copper, lead, and zinc produced from mines in Idaho in 1922, was $18,399,000; 1921 it was $15,776,819. The production of zinc and copper increased, gold decreased, and silver and lead were nearly the same as in 1921. The increase in total value was due largely to the increase in the price of lead. In general mining conditions improved in 1922. The labor situation was better, metal prices were increasing, and freight rates were reduced. Production was retarded however, by the idleness of the Hercules and Tamarack & Custer miners for about seven months.

The mine output of gold in Idaho in 1922 was valued at $490,000 as compared with $545,731 in 1921.

The mine output of silver decreased slightly, from 6,080,528 ounces in 1921 to 5,998,000 ounces in 1922. The largest silver producers in the State were the Bunker Hill & Sullivan, at Kellogg, the Hecla mine, at Burke, and the Morning mine of the Federal Mining & Smelting Company.

The mines of the Coeur d'Alene district produced 4,423,000 ounces of silver, or 74% of the total for the State.

The mine output of copper increased from 1,688,195 pounds in 1921 to 3,946,000 pounds in 1922. The value of the output increased from $217,777 to $529,000.

The mine output of lead decreased from 198,469,119 pounds in 1921 to 195,300,000 pounds in 1922, but the average price of lead was about 5.7c a pound, and the value increased from $8,931,110 to $11,132,100. The Bunker Hill mine produced much more lead than any other mine in the State. It was followed by the Morning and Hecla mines, which were active the entire year, and the Hercules, Tamarack & Custer, and Gold Hunter, which were idle part time. The Coeur d'Alene district alone produced about 183,000,000 pounds of lead.

The mine output of recoverable zinc increased to 4,400,000 pounds, valued at $250,800, as a result of the higher price of zinc and reduced freight rates. The Callahan Zinc & Lead Company, and the Morning mine of the Federal Company, resumed shipments of zinc concentrate in November. Concentrate on hand at the Success mine was not shipped in 1922.

Dividends amounting to $2,019,250 were paid by the Bunker Hill, Hecla, Federal and Star mining companies during eleven months of 1922.

Montana

The value of the gold, silver, copper, lead, and zinc mined in Montana in 1922, was $44,483,000, a large increase from the value of $16,324,521 in 1921. The output of silver, lead, and zinc was close to normal, but that of gold and copper was below the average of the last 20 years. The large mines at Butte resumed operations early in the year, but the copper mines were not operated at maximum capacity. Wages at Butte were increased, and by December the market for metals had improved considerably.

The value of the output of gold increased from $1,480,763 in 1921 to $1,664,000 in 1922. The production of gold from copper ores increased considerably but did not approach past records.

The mine output of silver increased from 6,558,713 ounces in 1921 to 12,500,000 ounces in 1922. The resumption of activity at Butte, together with the general incentive to mining due to the price of silver, resulted in an output close to that of 1919 and 1920.

The output of copper increased from 48,098,730 pounds in 1921 to 165,100,000 pounds in 1922 as a result of a better market for copper. The copper smelting plant at Anaconda resumed operations in February and was producing it later at the rate of 14,000,000 pounds a month. The Pittsmont plant of the East Butte Copper Company was not operated at full capacity but produced 1,000,000 pounds a month, partly from custom ores.

The mine production of lead increased from 20,366,917 pounds in 1921 to 29,775,000 pounds in 1922, and the value increased from $916,511 to $1,697,175. Most of the lead was produced from zinc ore or silver-lead ore of the Butte & Superior, Elm Orlu, Davis Daly, Moulton, and Anaconda properties at Butte.

The output of recoverable zinc in Montana increased from 23,275,966 pounds in 1921 to 114,000,000 pounds in 1922. The value increased from $1,163,798, to $6,498,000. The Butte & Superior mine was again active and was the largest producer of zinc in the State. The Elm Orlu, Davis Daly, Emma, and Moulton mines were also large producers. All the zinc ore was milled at Butte and Anaconda and treated in the zinc plant near Great Falls, which operated at capacity.

No dividends were paid by mining companies operating in Montana during the first 11 months of 1922.

New Mexico.

Metal mines in New Mexico in 1922 produced $374,000 in gold, 700,000 ounces of silver, 2,600,000 pounds of lead, 31,000,000 pounds of copper, and 4,500,000 pounds of zinc, as compared with $196,822 in gold, 571,899 ounces of silver, 14,267,338 pounds of copper, 678,601 pounds of lead, and 228,000 pounds of zinc in 1921.

The metal output in New Mexico depends directly and indirectly on the price of copper. In 1921 the Chino Copper Company, which has large developed reserves of copper ore at Santa Rita, closed its large milling plant at Hurley on April 12th. This mill was reopened on April 1, 1922, and it continued throughout the remainder of the year at about 30% capacity, producing 26,660,000 pounds of copper in concentrate. As soon as the copper concentrate began to arrive at the El Paso smelter, a market was set up for the siliceous ores of Lake Valley, which incidentally carry silver. With copper smelting resumed in Arizona, the siliceous ores of Lordsburg were again in demand at Arizona smelters. These ores, which were shipped at the rate of over 7,000 tons monthly from April, 1922, carry some copper, silver and gold.

Nevada.

The value of the gold, silver, copper, lead, and zinc mined in Nevada increased from $12,137,536 in 1921 to $14,712,000 in 1922. This was greater than the value in 1921, but much less than that in any other recent year.

The output of gold decreased from $3,312,757 in 1921 to $3,147,000 in 1922. The gold from the Tonopah district increased from $999,094 to $1,199,690, and that of the Goldfield district from $146,782 to $242,300.

The mine production of silver increased from 7,083,782 ounces in 1921 to 8,198,000 ounces in 1922, as the mining companies made every effort to take advantage of the Pittman Act. The Tonopah district produced 5,665,000 ounces, as against 4,623,901 ounces in 1921, and the development of several of the mines at depth was most encouraging.

The mine output of copper increased from 10,961,491 pounds in 1921 to 19,892,000 pounds in 1922, and the value from $1,414,032 to $2,666,000. The Nevada Consolidated mine at Ely, in White Pine County, resumed operations in April and produced 5,000,000 pounds of copper in May, but this rate was seriously retarded by the burning of the mill in July.

The mine output of lead increased from 7,188,768 pounds in 1921 to 9,107,000 pounds in 1922, and the value from $323,495 to about $519,000.

The mine output of recoverable zinc increased from 69,397 pounds in 1921 to 3,200,000 pounds in 1922. Much of the ore shipped to zinc plants in December did not reach its destination in 1922. A large quantity of zinc concentrate stored at the Simon Silver Lead mine was being shipped in December. The marketing of zinc ore was greatly aided by reduced freight rates and the increasing price of zinc.

Washington.

The value of the gold, silver, copper, lead and zinc produced from mines in Washington was $573,000, as compared with $332,313 in 1921. The improvement of the metal market, especially during the last part of the year, resulted in an increase in all five metals, but the total value was much less than the average of the last ten years.

MALLEABLE IRON MELTING

M. M. Marcus, general superintendent of the Rhode Island Malleable Iron Works, Hillsgrove, R. I., gives some pointers on malleable iron practice in **The Foundry** along this line:

Modern practice in the manufacture of malleable iron castings as controlled by science presents a strong contrast to the methods used in the early stages of the malleable industry. For this reason, some historic points are of interest in approaching the present day malleable problems. The manufacture of malleable iron, strictly speaking, may be said to be confined in this country to the past 20 years. At present about 250 different firms are producing malleable iron and these turn out a yearly total approximating 1,000,000 tons. During the past 20 years malleable castings have replaced gray iron in a number of cases.

Owing to the lower carbon and silicon contents of the malleable mixture, the melting point is considerably higher than in the case of gray iron. Lower phosphorus and manganese contents make malleable iron less fluid than gray iron therefore the metal must be poured more rapidly and at a higher temperature. The second distinction of importantce is the greater liability of malleable iron to shrink and crack. The initial contraction in malleable iron is about double that of gray iron and averages about a quarter of an inch to the foot. On this account unusual care is necessary to avoid shrinkage due to unequal cooling.

The process of annealing causes an expansion of about one-eighth of an inch to the foot, thus making the final product correspond closely as to shrinkage with the gray iron product, so that the same pattern rules may be used for both classes of work. However, the actual patterns usually differ greatly due to necessity for special gating in the case of malleable castings. As a result it is advisable for the malleable foundry to design the gates of its patterns.

Fluid iron in a mold tends to draw away from the heavier section into the lighter section due to the more rapid cooling in the latter, and this tends to produce cracks at or near the point where the lighter sections join the heavier. The cracks generally show when the casting is first taken from the sand, but frequently cracks do not develop until after annealing. The simplest way to overcome the tendency to crack is by designing the castings with uniform sections, but, of course, this is not always possible. Where abrupt changes cannot be avoided shrinkage may be overcome by the use of chills on the heavy sections, which tend to accelerate cooling, or by using risers on the light sections as closely as possible to the point at which the different sections join. The risers or shrinkage heads should be heavy enough to feed the light sections.

In the production of malleable castings two important items should be considered. First the carbon of the white iron must be in chemical combination and in such combination that it is annealable, and second, the annealing must be such that it will dissociate the carbon in combination as precipitated free carbon. The chemical analysis, the casting temperature, and the rate of cooling are the three main factors that are directly responsible for the proper condition of the carbon for annealing. Other conditions being constant, the higher the casting temperature, and the more rapid the rate of cooling, the greater will be the percentage of combined carbon. The rate of cooling may be modified by a number of factors such as thickness of section, time of dumping of molds, artificial chill and casting temperature.

Chemical Analysis

From the metallurgist's point of view the most important factor is chemical analysis. The condition of the carbon is largely determined by the inherent relationship of the various elements. By varying the percentage of silicon it is nearly always possible to secure the proper condition of combined carbon, but to do this the carbon must be reduced as the silicon percentage is increased. By varying the elements in their relation one to another, the skilled metallurgist is able to secure a great range in physical property of the product.

MAKING THE BEST OF TRANSPORTATION SITUATION

"If the conditions that cause heavy monetary losses and demoralization of industry could be traced to any one man, it would be a comparatively easy matter to adjust them," says the **Railway Review.** "Popular outcry against the responsible party would cause his removal. But when such conditions exist and no one person or group of persons can be held to blame, it is a far different proposition.

"Traffic conditions of the past few years have been caused by a multitude of circumstances. Column after column of newspaper and magazine space has been devoted to the situation, and when the months of August, September and October rolled around, the same conditions were existing. The railroads were called on to handle enormous amounts of freight within the space of a few weeks and, of course, they were unable to meet the demand.

"Every year constructors, consumers and manufacturers are delayed in their plans and suffer heavy loss through failure to recognize the advantage of meeting their requirements through those months of the year when adequate transportation facilities make for prompt deliveries. No one person is responsible for this situation. It is a widespread condition. Through general realization and action alone can relief come.

"The railroads have a powerful organization that can be brought into action to assist in alleviating the ill effects of the peak-load months. There is a station agent in practically every town and village in the country. The railroads are represented everywhere. With each of these representatives armed with effective literature; with every one preaching the gospel of early shipments and stressing the desirability of getting shipments out during the Winter, Spring and early Summer, there are bound to be beneficial results that will take some of the heavy load from the August, September, October demands.

"Co-operation between railroads and the various branches of the construction industry toward elimination of the peak-load by spreading shipments more evenly throughout the year—would mean a vast saving to every one concerned.

"For years the cement industry has been co-operating with the railroads in an effort to straighten out the situation. Cement is practically always shipped in carload lots and every car is loaded to axle capacity. Inasmuch as raw materials for cement manufacture are only found in certain localities, the plants are more or less grouped, a situation that adds to the burden of the railroads. This condition is apt to cause embargoes and congestions which are the result of overladen transportation.

To move to market each year the required quantitiy of Portland cement necessitates the use of a surprising number of cars. It is estimated that this year's cement production will amount to 110,000,000 barrels, for which something like 550,000 cars were necessary. Of this large total, almost 40%, or 220,000 cars must be moved within a period of ninety to hundred days—roughly from the last of July to the beginning of cold weather. Cement is a basic material and whenever a carload is shipped it means that carloads of other materials must go to the same point to go into whatever construction project the cement is to be used for. For every car of cement, the railroads must carry a number of cars of other material.

"Inasmuch as car shortages and railroad congestion will be with us until the railroads are able to get firmly back on their feet it is absolutely essential to make use of transportation facilities when they are available. This means that every effort must be made to get shipments out during the Winter, Spring and early Summer. To do so may cause some inconvenience and expense, but neither is commensurate with the losses sustained from delays caused by the congestion during the heavy shipping months of August, September and October.

A great step can be taken toward solving the problem by consistent co-operation between all forces involved, and through the preaching of the doctrine of early shipments—which is the business of the railroads and in which no one should be more interested than the railroads.

TECHNICAL AND COMMERCIAL ABSTRACTS

A New Process in Metal.—The necessity for a metal having similar magnetic properties to brass and gun metal, but in price more nearly approaching that of cast iron has long been felt by manufacturers of electrical equipment. Such a product is now on the market under the name of "No-Mag," a Dawson-Ferranti patent, an alloy which not only possesses the properties of gun metal but also has a higher specific resistance than ordinary cast iron. This metal combines the essential non-magnetic properties of gun metal and the high-resistance properties of cast iron. By its use in the construction of an alternator the hysteresis and eddy-current losses in the stator and end plates are reduced to a minimum, and magnetic leakage is largely prevented; the same applies to the covers over the end connections. In the case of armatures or rotors of direct and alternating current generators or motors, non-magnetic iron end plates are used, the total flux is kept particularly confined to the armature core, and magnetic leakage is again reduced to a minimum, the latter being important from the point of view of the reduction in the amount of copper which may be used. It can be cast with the same facility as ordinary cast iron, brass and aluminum, and has the same appearance as the first named, with which it also compares equally as to strength and machining properties. The cost depends somewhat, as does that of ordinary cast iron, on the type of casting into which it is put, but can be taken as being between 20 and 50% higher than that of gray iron.—**Electrical Review** (London).

IRON AND STEEL

Numbering of Steels — After extended discussion of the problem involved in the numbering of steels, the conference called by the American Engineering Standards Committee, at the request of the Bureau of Standards, decided that the matter could be handled better by a sectional committee of the American Engineering Standards Committee. For that reason no plan or program was adopted, so that the sectional committee could consider the matter without limitations as to whether the classification be based on chemical analysis, heat treatment or physical tests. It was the sense of the conference that there should be a uniform numbering system for forging, casting, structural, tool and other steels, including structural plates. France and Switzerland are the only two countries which have given serious consideration to this problem, it was brought out, but it is believed that something can be learned from the experience in those countries. It was the general opinion that a code of numbering would be useful only when based on definite specifications. It was suggested that the American Society for Testing Materials and the Society of Automotive Engineers be named as sponsors for the consideration of the problem. — **Chemical and Metallurgical Engineering.**

The Production of Rustless Iron.—There has been developed recently in England a "rustless iron." This material is iron to which a certain proportion of chromium has been added. A similar alloy called "stainless steel" has for some time been familiar to metallurgists. Stainless steel differs from rustless iron chiefly in that it contains small amounts of carbon. In order to produce rustless iron, an iron chromium alloy free from carbon, it is necessary that carbon-free iron and chromium be available. The usual forms of chromium, commercial grades of ferro chromium, contain comparatively large amounts of carbon. The discovery of rustless iron has thus made it very important to be able to treat ferro-chromium by some process which will remove the carbon. Among the methods proposed is that of heating ferro-chromium in contact with hydrogen.—**Blast Furnace and Steel Plant.**

Experiments In Pig Iron.— The Hartford Electric Light Company, Hartford, Conn., has made arrangements to operate the plant of the Connecticut Electric Steel Company, in that city, for a test run to make synthetic pig iron. This process is designed to convert steel scrap into gray iron by increasing the carbon content and at the same time refining the iron by the elimination of

impurities. The object is to determine the commercial possibilities of the process under local conditions. It is the claim that it will be possible to produce pig iron of analysis superior to the blast furnace product at a price to compete with the delivered cost of blast furnace pig iron in New England.—**The Foundry.**

Combustibility of Coke—Further work on the combustibility of coke and relative reactivity with carbon dioxide is being conducted by the southern experiment station of the United States Bureau of Mines, Birmingham-Tuscaloosa, Ala., in co-operation with the Pittsburgh, Pa., station of the bureau. Two variable properties of coke, namely, its combustibility and rate of oxidation of "solution" in carbon dioxide, are believed to play an important part in its performance in the blast furnace. It has been stated that the ideal coke should come down to the tuyere zone without oxidation by the carbon dioxide in the stack gasses (Gruner's ideal working), and should there burn rapidly to carbon monoxide. Laboratory scale tests for determining relative combustibility of cokes and their reactivity with carbon dioxide have been developed, and a number of by-product and beehive cokes tested. The relation between these values and the physical properties of the coke has been studied. A comparison of laboratory scale tests results and results of actual furnace practice is being made.—**Blast Furnace and Steel Plant.**

Safe Pipe Bends—At the convention of the American Society of Mechanical Engineers perhaps one of the most valuable contributions to the power-plant field was the paper on "The Elasticity of Pipe Bends," by Messrs. Crocker and Sanford. As expressed by the authors, the disposal of expansion and contraction in power-plant piping up to the present time has been largely a matter of judgment rather than rational calculation on the part of the designer. This perhaps may have been all well enough in the past, but as steam pressures and temperatures in turbine practice continue to mount, the problem of providing for the excessive stresses that may be set up becomes more and more important. From the safety viewpoint alone it is imperative that the designer know how to calculate the forces involved and to use this information in laying out the piping system. The authors have developed a rational method of attacking such problems and show wherein their methods and results differ from the work of previous contributors to the subject. Treating expansion bends in pipe lines as if they were beams acted upon by the forces set up by the expansion of the piping, formulas were derived for the forces and stresses in some of the more common types of bends, and to check the formulas several bends were tested by applying a force to one end of the bend and the force and deflection measured. All data obtained are expressed graphically for convenient reference, and the formulas are presented in chart form for use in selecting the proper shape and size of the bend to take up a given expansion.—**Power.**

Steelwork and Weather Exposure—Summarizing years of experience in maintaining large steel outdoor structures, an engineer recently stated that the older structures under his care have proved to be seriously lacking in resistance to weather exposure, due to certain minor details. Excessive spacing of stitch rivets was his principal point of criticism; the riveting fails to draw the component parts of the steel members into contact tight enough to prevent moisture entering and rust beginning, and, corrosion once started, its wedging effect due to volume expansion as oxygen is taken up produces a further spreading of the plates and facilitates the destructive process. Closer stitch riveting in the later structures has virtually eliminated this trouble. The widely spaced riveting was laid out with a view to the structural strength of the uncorroded part, in other words for proper strength under indoor conditions, but it proved inadequate in the long run for outdoor exposure. It happens, unfortunately, that current designing rules do not differentiate between the requirements of indoor and outdoor exposure. At most they recommend taking account of the effects of the weather by adding a certain thickness of metal for loss by rusting—an old-time rule whose value today is rather ques-

tionable. As the experience above quoted indicates that exposure resistance may depend on the detailing, there appears to be opportunity for improving the rules of practice. In preparation for such rules of improvement, it would be of value to have the question illuminated by notes from the experience of other maintenance engineers. — **Engineering News-Record.**

COAL

Why Procrastinate?—Probably nothing could be more ridiculous than our present method of mining and transporting coal. During the Summer months, when coal is most easily mined and transported, production is usually at a minimum, and in the Winter, when the greatest difficulties are encountered in mining, water and railway transportation and local distribution, maximum production must be maintained to meet the demands during this period. This condition has existed practically as long as the coal-mining industry, and little has been done toward a remedy. If this affected only one class of interests it might not be so absurd but it affects every one having to do with coal —the mine owners, operators, miners, railroads, distributors, and the public. The only ones that can benefit are the speculators, who profit by other's misfortunes. Is it not time for all interests to get together in an honest attempt to work out a solution? If advantage is taken of the facts developed by the strike last year that there is sufficient coal-storage capacity in this country to maintain a high rate of production during the Summer months, and something is done to prevent a future shortage, then the strike will have at least one redeeming feature.—**Power**

Coal Tests by Bureau of Mines.—"The vertical carbonizing oven constructed at Grand Forks, N. D., in the course of a co-operative investigation by the University of North Dakota and the United States Bureau of Mines, looking toward the commercial utilization of the north western lignites, has recently been operated under the supervision of W. W. Odell, fuel engineer of the Bureau of Mines in the Manufacture of lignite char on a commercial scale," says **Industrial Management.** "Results were very satisfactory, and valuable information on the production of lignite char with the recovery of by-products was obtained. The cost of producing this char was reduced considerably below the cost of operation in the carbonzing oven used in 1921. A satisfactory grade of char was produced. Grates for the utilization of this char in the ordinary magazine feed house heating stove and for a house heating boiler have been made at Pittsburgh and sent to North Dakota for distribution to domestic consumers. In the course of tests at Pittsburgh, Pa., by the Bureau of Mines, lignite char has been found to burn to a gas containing a higher proportion of carbon-monoxide than that from coke. To determine if this relatively high carbon-monoxide content with lignite char is to be attributed to the smaller size of the char coke of the same size as the char will be burned on the next tests. The method of collecting mine samples of coal by the Bureau of Mines involves selecting a representative face of the bed to be sampled; cleaning the face; making a cut across it from roof to floor, and rejecting or including impurities in this cut according to a definite plan as they are included or excluded in mining operations; reducing this gross sample, by crushing and quartering, about three pounds and immediately sealing the three pound sample in an air tight container for shipment to the laboratory."

Coal Situation Still Menacing—With no desire to appear pessimistic or to cause undue alarm over the coal situation, we should be recreant to our duty if we did not advise public utilities and others to keep a careful watch on developments and take advantage of every opportunity to obtain and store coal. The outlook is far from reassuring. Indeed, the signs indicate a recurrence of the coal strike next Spring, and at the present rate of production and shipment the shortage will be acute. No matter what is done now, next year there will be no great surplus to draw from, and if a strike comes the effect on all industry, unless the disturbance is of short duration, will be depressing. It will be a great service to the country if the fact-finding commission shall have made public by that time the vital facts bearing on the situation, but even the knowledge of such facts will be of little comfort when weighed against the one

outstanding fact that coal will be hard to get. Therefore plans should be laid now for systematic storage of whatever surplus fuel is available.—**Electrical World.**

LABOR AND MANAGEMENT

Factors of a Foreman's Success—Robert Grimshaw, writing in the **American Machinist,** says: "The factors making up a foreman's success might be laid down as the possession of those qualities that make almost any leader successful: knowledge of his own qualifications, of his defects, of the abilities and limitations of those with whom he comes in contact, of the activity in question, and of the ability to impart his knowledge and make himself obeyed. But some things might be pointed out as the potent factors in a foreman's success. They may be worth cultivating if nature has not been generous in this connection at birth, and if opportunity and environment have failed to make amends for those qualities which nature has neglected. Perhaps the first factor that might be particularly singled out as desirable is open mindedness. This is the willingness to admit that others do, can or have, an inherent right to know something; or can even be on the right side of a disputed question. On broad general principles the foreman is assumed to know more, even in petty details, than those under him. But if he cannot show this to the satisfaction of others, he will be set down as wrong. Once his fallibility and ignorance are shown to exist, and to be backed by his tacit or other declaration of infallibility, his influence for good, his strenuous seeking for progress in the work, his most earnest efforts for the betterment of his operatives' conditions, are weakened, if not entirely destroyed."

Employment and Labor Turnover—A careful selection of employes and the development of a better understanding and closer co-operation between the employment department and department heads are among the big employment problems of today. Before the Autumn of 1920, when the demand for help was greater than the supply, we welcomed with open arms anybody who applied for a position. Scant attention was paid to careful selection. It was vital to fill vacancies rather than to choose the applicant whose qualifications were most suitable for the job. The time has arrived when the employment manager must shoulder the entire responsibility for selecting the right person. The outgrowth of this will be a better understanding and a closer co-operation between the employment department and the department heads, as well as the building up of a better personnel. Until he accepts this responsibility the employment manager can not command the confidence of the operating man on the job.—**American Machinist.**

Mutual Benefits from Winter Buying—"Seasonal fluctuation in activity is grouped with inefficient methods and transportation difficulties to form the eternal triangle of the construction industry," says the **Engineering News-Record.** "In one field—that of cast iron pipe—a discussion has been in progress in these pages for several weeks past dealing with the feasibility of spreading purchases throughout the twelve months of the year instead of concentrating them during the Summer. The pipe buyer is human. He wants something more definite than the assurance that he will share in the production savings effected by Winter purchases. He has been paying a certain price for pipe bought largely during the Summer. Assuming that through some central agency it were possible to prepare an approximate estimate of the aggregate tonnage of orders that might be placed this Winter, what reduction in price below present levels can be expected? To be convincing and to serve as the basis of nation-wide action by the buyers of pipe, the manufacturers must be in a position to supply something fairly specific as to the actual amount of price reductions in the event of orders for certain definite tonnages. This being assured, the pipe users—through the technical societies interested—could well go ahead on a constructive program looking toward Winter buying of pipe."

Production Tools in Demand—Intensive production work, wherein not only quantity but quality output as well is demanded, has resulted in a number of

radical changes in machine shop practice during the past few years. Indicative of the trend in production methods, a grinding machinery expert points out that during the past few months he has observed considerable growth in the use of vertically-operated grinding machines in place of horizontal machinery. This type of tool, he states, simplifies loading and unloading, effecting a considerable saving both in time and physical effort. It is obvious from this year's observation that the elimination of useless physical effort and the utilization of every available minute is the thought uppermost in modern production managers' minds. Machine tool builders should give this phase of production work careful study when placing new machine tools on the market. It probably will tend to influence machine tool design for some years to come.—**Iron Trade Review.**

FOREIGN

Improvement in British Steel Market—"The latest report of the London iron and steel market suggests a slight improvement, with, to take one item, brisk business in the sheet steel market," says the British correspondent of the **American Machinist.** "But as regards stainless steels, while their applications are being extended, attempts toward an increased rate of production are hampered by difficulty in obtaining greater supplies of chromium. Some of the home railways have been ordering rails and rolling stock. Also it is reported that orders are being placed for cars by private traders for the first time since the de-control of the railways. In shipbuilding there has been some slight improvement, and the practically depleted shipways, etc., of Vickers, Ltd., at Barrow, will soon be partly occupied in the production of a 20,000-ton passenger liner for the Orient Company, with oil-fuel boilers and turbines driving through single-reduction gearing. Some measure of revival is expected in shipbuilding generally, as soon as wages have been readjusted."

Helping Steel Industry—Training government field men as to the kind of information that American iron and steel producers desire has been one of the principal problems of the Iron and Steel Division of the Bureau of Foreign and Domestic Commerce, as pointed out by Luther Becker, chief of the division, in his annual report, which says: "The chief of the division drew up a comprehensive and detailed outline of questions to serve as a basis for investigation and preparation of reports for transmission to Washington whenever anything was found that the investigator believed to be of interest to the American exporter of steel. Each question was designed to develop information of vital concern to an exporter of steel, and none was included that was impossible to answer. Gratifying results have already been achieved with this plan, and from sections of the world least expected. Some of the returns were published, while others served as background material for use in answers to specific trade inquiries. One foreign government published the division's outline in its official publication in the vernacular, as indicative of the methods and thoroughness of the bureau in the collection of foreign information for American exporters of steel. Results obtained through the operations of the iron and steel division can not at this early stage be judged by any dollars-and-cents method. Whatever advantage has been gained through the efforts put forth is known to the individual exporter. Repeated inquiries and the numerous letters of commendation received from a variety of sources indicate the estimation placed by the industry on the achievements of the division thus far."—**Iron Age.**

The Machinery Market in South America—With facts and figures which are striking, a recent issue of **Commerce Monthly,** the trade organ of the National Bank of Commerce of New York, calls attention to the favorable position of the United States with respect to future trade with South America. It stresses the valuable relationships which have been established, and points out the great improvement which has been made in shipping facilities since 1914. In the period from 1910 to 1913 it is shown that but 15% of the southern continent's total imports came from the United States. By 1917, due to the great impetus given to foreign trade generally as a result of the war, South

America reached a point where 46% of her needs were supplied by America. That the post-war depression has had but little effect upon the trade established is shown in the imports for 1920, which show the United States still greatly in the lead and supplying 42% of the total. The South American export trade with the United States is no less striking. Before the war she sold us 20% of her outgoing products. In 1917 we took 42%, and in 1920 33% of her goods. That we should hold the abnormal war position is hardly to be expected. Recent statistics, however, point clearly to the fact that future trade with South America will be permanentlylarger than ever before.

Metal Industry Expanding in South America — Southern metal trades industries have been experiencing an unusual increase in export sales to Latin-American countries in the past five or six weeks, according to William E. Dunn, Jr., secretary of the Southern Metal Trades Association, who advises that metal trades products made in the south are in greater demand now in all Latin-American countries than in the past two years. Central American, South American and Cuban trade is especially good, with Brazil and Argentine trade in the lead. Porto Rican conditions are rapidly improving, and border trade with Mexico has increased rapidly during the past two wonths. The outlook, Mr. Dunn states, is for the largest export business with Latin America in 1923 that the southern metal trades industries have yet experienced. — **American Industries.**

Pirating American Machinery — "W. H. Rastall, chief of the Industrial Machinery Division of the Bureau of Foreign and Domestic Commerce, gives excellent advice to American machinery builders as to the protection of their machines, especially machine tools, against pirating on the part of manufacturers in other parts of the world," says the **Iron Age.** "He takes his text from reports received from observers at this year's great merchandise fair at Leipzig, particularly the machine section. These say that a surprisingly large number of tools were 'copies of well-known American devices that have demonstrated their merit in service in many countries,' The essential point, Mr. Rastall shows, is that American machinery is being reproduced at greatly reduced cost."

American Steel in Scotland—Among other things written for the **Railway Review** by E. S. Rice, he says: "Coal in Scotland costs $1.50 a ton at the minehead. As for steel products, it is a surprising thing that considerable steel from the States is sold there at a better price than the home product. For instance, in Glasgow the United States Steel Products Company laid down many tons of steel rails for the municipal street car lines against both Scottish and English competition. All I can say is that you have to take your hat off to the American salesman. German steel is cheaper than American, but it has not corraled the trade yet."

Austrian Trade in Critical Condition— The decline in the German mark and the improvement in the Austrian krone have led to an acute crisis in Austrian commerce and industry. Demand has suddenly receded and orders have fallen off very considerably. In iron and steel conditions are very discouraging, and quite a number of factories are working on short time.—**Iron Age.**

PUBLIC QUESTIONS

Publicity Offsets Harmful Agitation— Certain public men who advocate repeal of the Transportation Act do not understand the railroad situation, nor do they rightly represent the attitude of their constituents, said Charles H. Markham, president of the Illinois Central Railroad, in an address before the Western Society of Engineers at Chicago. Mr. Markham spoke extemporaneously. His discussion of the railroad situation was, in substance, similar to the address delivered by him before the Railroad Business Association at New York. He said: "If every road in the country would undertake properly to inform the people along its line of railroad, there would not be much of a railroad problem today."—**Railway Review.**

BUSINESS TRENDS

BUSINESS FAILURES.

While 1922 was what might be termed a year of construction and repair after the storms of 1920 and 1921, a record number of enterprises evidently proved to be beyond saving, and the past year, the third since the bursting of the boom of 1919 will very probably hold, for some years to come, the distinction of having seen the greatest number of casualties and the second largest total of failure damage in the country's history.

There were 22,400 failures reported to Bradstreet's for the full calendar year 1922, an increase of 11.9% over 1921 and 164% over 1920, while as compared with the boom year 1919, the failures were four times as large. Liabilities for 1922, $646,955,633, were 14% smaller than in 1921, but 51% in excess of those of 1920, over five times the liabilities of the boom year, 1919, and 81% in excess of the year 1914. The assets of 1922, $364,602,438, prove to be only 56.3% of the liabilities, whereas the proportion of assets in 1921 was 59% and in 1920 64.3%. The number in business in 1922 in the United States was 2,074,116, a gain of 1.2% over 1921, but as failures increased 11.9% the proportion of those failing to those in business rose to 1.08% as against ninety-seven hundredths of 1% in 1921, forty-three hundredths of 1% in 1920 and twenty-nine hundredths of 1% in 1919, the latter being the lowest ever reported since Bradstreet's compilations were begun.

The following table gives the failures, assets and liabilities in the U. S. yearly since 1905.

	No. failures.	% inc. or dec.	Actual assets. millions.	Total l'b'ties millions.	% assets to l'b'ties.
1922.	22,400	+11.9	$364.6	$646.9	56.3
1921.	20,014	+136.4	446.6	755.7	59.0
1920.	8,463	+53.4	274.1	426.3	64.3
1919.	5,515	—40.8	55.3	115.5	47.9
1918.	9,331	—28.3	69.3	137.9	50.9
1917.	13,029	—21.0	84.8	166.6	50.9
1916.	16,496	—13.3	86.1	175.2	49.1
1915.	19,035	+13.4	160.8	284.1	56.5
1914.	16,769	+15.2	197.2	357.1	55.2
1913.	14,551	+5.3	159.0	292.3	54.3
1912.	13,812	+9.2	98.5	198.9	49.5
1911.	12,646	+9.2	102.0	188.1	54.2
1910.	11,573	—2.3	94.2	188.7	49.8
1909.	11,845	—15.6	69.3	140.7	49.2
1908.	14,044	+36.8	168.4	295.9	56.9
1907.	10,265	+9.3	287.9	383.7	75.0
1906.	9,385	—5.9	63.1	127.2	50.0
1905.	9,967	—4.3	65.0	121.8	53.3

BANK CLEARINGS.

Bank clearings for the calendar year 1922 as reported by Bradstreet's reflected many of the irregularities that characterized trade and industry during that rather disturbed year. The first quarter of the year saw the long succession of decreases monthly and weekly since 1920 give way to gains, not because of actual expansion in bank operations this year, but because comparisons were being made with dwindling totals in the first few months of 1921. The second quarter of the year, in harmony with the really cheerful trend of affairs, saw actual expansion in clearings and really large percentage increases over the low-water totals of the Summer of 1921, but the third quarter's clearings, affected first by the fuel scarcity resulting from the coal strike, and later by the strike of shopmen, showed a reactionary trend, apart from the natural quieting down of trade in Midsummer. The fourth quarter totals, reflecting the quick rebound in activity and feeling which followed the ending of these strikes and the late but strong opening of Fall trade, were the best of the year. The sharpness of the rebound was perhaps best illustrated by the fact that the smallest and largest totals of the year were reached only two months apart, that is in August and October.

The total clearings at 118 cities of the United States for the calendar year 1922 as reported to Bradstreet's were $375,525,216,000, which marked a gain of 10.2% over 1921, but a decrease of 13.1% from 1920 and of 6.7% from 1919. Compared with the last year of war, 1918, the gain was 17%. Expressed in another way, the clearings, which had fallen $92,000,000,000 from the peak year 1920 to the depressed year 1921, regained $35,000,000,000, or 36% of this loss in the year just closed.

Following are the agregates of clearings monthly at 118 cities, compared with the like periods in four preceding years:

(Six figures omitted.)

	1922	1921	1920	1919
Jan.	$29,329	$32,223	$40,169	$31,235
Feb.	25,893	25,443	32,001	24,910
Mar.	31,422	29,672	39,703	28,944
April	30,969	27,688	38,012	29,529
May	32,314	27,367	35,527	32,173
June	33,524	28,916	36,800	33,069
July	31,204	26,834	35,819	36,274
Aug.	29,849	26,096	32,799	33,515
Sept.	30,683	27,059	34,385	34 283
Oct.	35,008	28,974	37,099	40,291
Nov.	31,502	29,200	34,407	38,023
Dec.	33.837	31,402	36,029	40,887
Total ..	$375,525	$340,874	$432,750	$403,133

BUSINESS TRENDS

BUILDING RETURNS.

Building according to Bradstreet's broke all records in 1922 with an estimated total value of house, office, store or factory construction permitted for at 164 cities of the United States of $2,474,202,442, as against $1,616,957,759 at the like cities in 1921. This is on the basis of the December value of building permitted for, about equaling that of November, actual returns for December having not yet been compiled. The total marks a gain of 53 per cent. over the hitherto high record year 1921, being to that extent the greatest value of construction ever recorded.

Below are given the building expenditures of 164 cities since January 1921:

	1922.	1921.
January	$140,517,763	$ 59,433,167
February ...	135,452,009	82,780,760
March	241,460,369	122,637,045
First quar.	517,430,141	264,850,972
April	217,171,601	147,757,989
May	247,722,281	141,999,279
June	250,172,411	145,628,348
Second quar.	715,066,293	435,385,616
Six months	1,232,496,434	700,236,588
July	205,244,105	150,162,525
August	220,456,973	158,240,684
September .	200,588,817	152,063,676
Third quar.	626,289,895	460,466,885
Nine months	1,858,786,329	1,160,703,473
October	209,070,208	170,817,220
November ..	206,345,905	146,366,886
Dec. (est.) .	200,000,000	139,070,000
12 mos. (est.)	2,474,202,442	1,616,957,579

NEW INCORPORATIONS.

Papers filed in the principal states for new companies, with an authorized capital of $100,000 or over during 1922, represented a total of $8,400,153,390. This compares with $7,959,111,400 in the preceding twelve months. Unmistakable evidence of a strong trend toward general business revival during the year explains the increase. While the returns embraced every branch of industry or business, promoters were particularly active in the formation of new oil and gas companies. In this connection there is a growing belief that 1923 will witness numerous railroad and industrial consolidations.

The following are the comparative figures as compiled by **The Journal of Commerce** of companies incorporated in the States during the last three years with authorized capital $100,000 or over.

	1922	1921.	1920.
Jan.	$843,652,900	$1,243,460,200	$2,280,460,600
Feb.	591,404,300	654,375,800	1,158,861,000
Mar.	731,866,000	954,700,000	1,375,797,000
April	792,372,000	987,894,000	1,354,262,400
May	938,195,000	601,044,000	1,417,613,900
June	297,557,000	675,977,800	1,323,221,400
July	634,259,200	281,759,000	1,260,418,600
Aug.	646,605,000	580,141,100	941,288,300
Sept. ...	650,044,000	489,846,100	950,953,200
Oct.	651,577,390	503,394,000	1,179,801,300
Nov.	808,719,600	367,956,100	895,563,100
Dec.	813,901,000	618,572,300	860,803,400
Total ..	8,400,153,390	7,959,111,400	14,999,044,200

COMMODITY PRICES

Bradstreet's commodity price index as of January 1, 1923, showed very little change from that of December 1, 1922, the number at the opening of this year being $13.7011, which marked a decline of half of one per cent. from the preceding month, while showing a gain of 20.4% over January 1, 1922. Compared with June 1, 1921, the low point of the past three years, prices are 29% higher, while compared with the high point on February 1, 1920, prices are 34.3% lower. The rise from August 1, 1914, is still 57.3%.

A monthly range of index numbers of the past four years is given below:

	1923.	1922.	1921.	1920.
Jan. ..	13.7011	11.3725	12.6631	20.3638
Feb.		11.4190	12.3689	*20.8690
Mar.		11.6001	11.8650	20.7950
April		11.5317	11.3749	20.7124
May		11.7044	10.8208	20.7341
June		11.9039	10.6169	19.8752
July		12.1069	10.7284	19.3528
Aug.		12.0688	11.0576	18.8273
Sept.		12.0793	11.0868	17.9746
Oct.		12.5039	11.1879	16.9094
Nov.		13.3482	11.3514	15.6750
Dec.		13.7835	11.3127	13.6263

* High record.

COMPARISON OF METAL PRICES

	Range for 1920.		Range for 1921		Range for 1922.		Closing Dec. 29.
Pig Iron.	High.	Low.	High.	Low.	High.	Low.	1922.
Bessemer, valley	48.50	35.00	32.00	20.00	33.50	19.00	27.50
Basic, valley	48.50	33.00	30.00	18.00	30.50	17.75	25.00
No. 2 foundry, valley	50.00	33.00	33.00	19.50	35.50	18.75	27.00
No. 2X fdy. Philadelphia	52.51	33.79	33.79	19.84	34.76	21.34	27.76
No. 2 foundry, Cleveland	50.56	33.40	33.56	20.56	35.50	19.56	27.50
No. 2X foundry, Buffalo	51.25	31.25	31.25	19.00	34.25	19.50	26.75
No. 2 foundry, Chicago	46.00	33.00	33.00	18.00	33.00	18.50	28.00
No. 2 Southern, Birm.	42.00	36.00	34.00	16.50	28.00	15.00	23.00
Scrap Iron and Steel							
Melting steel, Pittsburgh	30.00	14.00	17.00	12.75	22.00	14.00	20.50
Heavy steel scrap, Phila.	27.00	14.50	16.00	10.00	19.00	11.00	17.50
Heavy melting steel, Chi.	27.00	15.50	16.50	10.00	19.00	11.00	18.00
No. 1 R.R. wrought, Pitts.	34.00	16.00	17.00	11.00	20.00	11.50	19.75
No. 1 cast, Pittsburgh	43.00	19.00	22.50	15.00	25.00	16.00	22.75
Iron and Steel Products							
Bessemer rails, mill	55.00	45.00	45.00	40.00	43.00	40.00	43.00
Iron bars, Pittsburgh	4.75	3.06	3.06	1.85	2.55	1.80	2.35
Iron bars, Philadelphia	4.85	3.35	3.85	1.80	2.58	1.70	2.32
Steel bars, Pittsburgh	4.00	2.35	2.35	1.50	2.25	1.35	2.00
Tank plate, Pittsburgh	4.50	2.65	2.65	1.50	2.50	1.35	2.00
Structural shapes, Pitts.	3.25	2.45	2.45	1.50	2.25	1.35	2.00
Grooved steel skelp, Pitts.	3.60	2.65	2.45	1.50	2.10	1.40	2.00
Black sheets, Pittsburgh.	8.00	4.35	4.35	2.75	3.75	3.00	3.35
Galvanized sheets, Pittsb.	10.00	5.70	5.70	3.75	4.75	4.00	4.35
Tin plate, Pittsburgh	12.00	7.00	7.00	4.75	4.75	4.60	4.75
Wire nails, Pittsburgh	4.50	3.25	3.25	2.50	2.70	2.40	2.70
Steel pipe, Pittsburgh	54%	57½%	57½%	71%	66%	71%	66%
Connellsville Coke at Ovens.							
Prompt furnace	18.00	5.00	5.00	2.75	15.00	3.75	9.25
Prompt foundry	19.00	6.50	7.00	3.75	16.00	3.75	9.25
Metals — New York.							
Straits tin	65.00	32.50	39.00	25.50	39.00	28.75	38.75
Lake Copper	20.50	13.75	14.00	12.00	15.12½	12.75	14.87½
Electrolytic copper	19.50	12.75	13.75	11.50	14.62½	12.50	14.62½
Casting copper	19.25	12.75	13.00	11.25	14.25	12.25	14.25
Sheet copper	29.50	22.50	21.50	19.50	22.25	19.25	22.25
Lead (A. S. & R. Co. price)	9.25	4.75	5.00	4.00	7.25	4.70	7.25
Zinc (spelter)	9.85	6.00	6.10	4.25	7.70	4.82½	7.35
Chinese and Japanese Ant.	11.62½	5.20	6.00	4.45	7.00	4.15	6.30
Aluminum, 98-99%	32.75	22.00	26.00	17.00	23.00	16.50	22.75
Silver	137	59¼	73⅝	52⅝	73¾	62⅜	64½
St. Louis.							
Lead *	9.15	4.45	5.05	3.90	7.12½	4.35	7.10
Zinc (spelter)	9.50	5.50	5.60	4.12½	7.35	4.47½	7.00
Sheet zinc (f.o.b. smelter)	12.50	11.50	11.50	8.50	9.50	7.50	9.37½
London.	£	£	£	£	£	£	£
Standard tin prompts	415½	198	210½	148	187⅜	140	182⅛
Standard copper, prompts	122	70½	75½	65¼	66	57⅛	64½
Lead	52⅜	21½	26	16½	27	19½	26⅜
Zinc (spelter)	63	22½	28¼	23½	39⅛	23⅞	37⅝

* Outside market.

COMPARISON OF SECURITY PRICES

Iron and Industrial Stocks	Range. 1919. High.	Low.	Range. 1920. High.	Low.	Range. 1921. High.	Low.	Range. 1922. High.	Low.	Closing Dec. 29, 1922.
Allis-Chalmers	51⅝	30	53⅞	26½	39¾	28¼	59¾	37¾	44½
American Can	68⅝	42⅞	61¾	21¾	35½	23½	76½	32⅛	73⅛
American Car & Fdy..	148⅜	84⅛	147⅜	111	151	115¼	201	141	181½
American Loco	117½	58	109¼	74	110¼	73½	138½	102	127¼
American Smelt. & Rfg.	89¾	61½	72	29¼	47¼	29⅝	67½	43⅝	54⅞
Am. Steel Found., new	47	33¼	50	26	35	18	46⅛	30¾	37⅛
Am. Zinc & Lead Co. ..	29	10⅞	21¾	5¾	14⅜	6¾	....	....	....
Anaconda Copper	77⅞	54⅝	66½	30	50¾	31¾	57	45	48¾
Baldwin Loco	156¼	64⅞	148½	78	100⅜	62¼	142¾	92¾	137⅝
Bethlehem Steel B ..	112¼	55⅜	102½	48⅞	65	41½	82¼	55½	62⅜
Butte & Superior	37½	16⅞	29¼	8	22⅛	10	35¼	20⅜	31⅛
Cerro de Pasco	67½	31	61⅜	24¼	36½	23	46⅜	32⅞	43¾
Chile Copper	29¼	16¾	21¼	7¾	16⅞	9	29¼	15⅛	27½
Chino Copper	50⅞	32⅛	41⅝	16⅜	29½	19½	33⅜	22¼	25¾
Colo. Fuel & Iron	56	34¾	44¼	22	32¾	22	37⅜	24	26
Crucible Steel	261	52⅛	278½	70	107½	49	98⅜	52¾	69½
General Electric	176	144½	172	116½	143¾	109½	190	136	181⅛
General Motors	41½	30	42	10¾	16¼	9⅜	15¼	8⅛	14⅞
Granby Con.	80	47½	55½	15	34½	15	35	22	23¾
Great Northern Ore ..	52⅞	31¾	41⅝	24⅞	35⅜	25⅝	45⅝	28⅞	30¾
Gulf States Steel	89½	49½	84⅞	25	50⅞	25	94⅞	44⅞	80¼
Inspiration Copper ...	69¾	42½	61⅞	28	42¼	29⅝	45	31	34⅞
Intern'l Harvester	149⅝	110⅛	142½	88	100½	67⅝	115⅞	79⅜	88¾
International Nickel ..	33⅞	20⅝	26¾	11⅛	17	11½	19¾	11¼	13½
Kennecott Copper	53⅛	27⅝	33½	14⅝	27⅞	16	39⅝	25½	35⅞
Lackawanna Steel ...	107¾	62½	91¾	45	58½	22	85	44	76¾
Midvale Steel	62¼	40¼	52¾	29½	33½	22	45½	26	28⅜
National Enam. & Stg.	88⅜	45	89½	43¾	66	26	68½	30¾	67¼
National Lead	94½	64	93¼	63½	87	67¾	129¼	85	128
N. Y. Air Brake (new)	....	....	....	....	....	....	41⅝	24½	25⅝
Pressed Steel Car ...	109	59	113⅞	72½	96	48	95¼	63	80½
Railway Steel Spring..	107½	68½	106½	73	99½	67	126¼	94	116
Ray Consolidated	27½	19	22¾	10	15⅞	11	19	12⅛	14⅜
Republic Iron & Steel	145	71½	124¾	55¼	73½	41	78½	43½	48½
Sloss-Sheffield	89	46½	82¼	43	56	32⅛	54½	34½	39
U. S. Cast Iron Pipe ..	38¾	14	25½	10½	19	11½	39	16⅛	29
U. S. Smelt., Rfg. & M.	78¼	43¼	76	29½	39⅜	26	45¾	32¾	37
U. S. Steel Corp.	115½	88¼	109	76¼	86½	70	111½	82	107¼
U. S. Steel Corp. pfd..	117½	114¼	115¾	104⅛	115	105	123	114¼	122
Utah Copper	97½	65⅛	80¾	44⅛	63⅜	41⅛	71½	59	64
Westinghouse Electric	59⅞	40½	55⅛	40	52¼	38⅞	65⅞	49⅛	59¾

The Immigration Problem.—"Making one more prominent industrial leader in the ranks of those who believe the immigration problem must be brought up and disposed of in a practical manner by the next Congress, John R. Howard, president of the American Farm Bureau Federation, told the members of the New York State Farm Bureau Federation at their annual meeting that immigration restriction was affecting the prosperity of the entire country, and particularly of the farmer," says **American Industries.** "Mr. Howard pointed out that the present law was limiting the amount of manual labor in the country, and one of its natural and inevitable results was a shifting of labor from the country to the city, presenting a tremendous handicap to the farmer in production. Another phase of the question mentioned by Mr. Howard was that the restrictive law forced prospective immigrants to seek other shores and become natural competitors of American farmers, adding still more to the depression they had been fighting for three years. It is a big problem for Congress, Mr. Howard stated, and revision of the present law undoubtedly is needed. He said he was not in favor of admitting immigrants indiscriminately, nor in favor of the educational test, but in favor of letting in all good, honest persons who really want to be citizens. It is the hard-working, honest person who can be absorbed best in the citizenship of the country, he declared."

Railroads and Motor Trucks—"Co-operation of railway and highway transport is discussed in an inspiring manner in the address of W. H. Lyford, vice president of the Chicago and Eastern Illinois Railroad, Chicago," says the **Engineering News-Record.** "As a railway executive, Mr. Lyford sees no rivalry between the railway and the vehicle which travels the public road. Complete transportation, that is carriage from the premises of the producer to the premises of the consumer, he points out can be accomplished only by the agency of the railway and the highway working in conjunction. Each agency has an economic field in which it excels the other. Short hauls of less than carload freight and collection and delivery of freight are particularly the task of highway transport. On the contrary, long hauls of carload freight are obviously the task of the railways. Operated in co-ordination, the two systems of transport give complete transportation service to the public. It is this conception of railway and highway transport as companion agencies which is inspiring, and gives the address of Mr. Lyford a real constructive value. Incidentally some of the specific applications of highway transport to railway service which are recorded deserve the most serious attention. They suggest, if not a complete solution, at least a way for ameliorating the ever-pressing difficulty of railway terminal management."

MISCELLANEOUS

The Electrically Heated Boiler in Practical Use.—The proposal to utilize electrical energy for the direct heating of boilers for the production of steam is a very old one in the electrical art. It would be a matter of interest to know how many times this particular device has turned up in the Patent Office in the last forty years. Looking at the matter from the viewpoint of larger utility, using electrical energy to produce steam for industrial heating by a relatively very inefficient prime mover would seem to be about as unpromising from the standpoint of economy as any procedure which could be imagined. Yet as a matter of fact there are instances in which the electrically heated boiler may be decidedly the less of several evils, and it has actually pushed its way into use abroad. Where there exists at times in a hydro-electric plant a surplus of water which cannot itself be economically stored, and which cannot be conveniently put to other than electrical purposes, there may well be a limited field for the boiler-heating scheme. In most American practice, if surplus capacity unusable in ordinary electric ways exists, it cannot be utilized indirectly by the production of steam, for lack of a suitable market. In order for the boiler-heating idea to become worth considering economically, one must assume conditions where hydraulic storage directly or by accumulators is not feasible, and where a storage battery is for one reason or another inadvisable for use to do the same work.—**Electrical World.**

IRON AND STEEL MARKET

The year 1922 was one of practically continuous improvement in demand for steel products. Had it not been for the sharp revival in December this statement would not be strictly accurate, for in October and November there were some evidences of waning interest on the part of buyers, suggesting at the time a dull ending for the year.

Whether consumption of steel in 1922 was measured precisely by the production remains to be seen. The year opened with no stocks to speak of, either of steel or of manufactures of steel, the preceding year having been one of drastic liquidation. It is quite possible that stocks were materially larger at the end of 1922 than at the beginning, but if so the change should be regarded merely as partial replenishment, there being no reason to suppose that stocks were above normal.

As to steel production, the ingot output was in the neighborhood of 34,000,000 gross tons, an estimate that the official statistics, to appear some months hence, will in all probability confirm within less than half a million tons. Production in the past three years would then be as follows:

1920	40,881,392
1921	19,224,084
1922	34,000,000

Obviously actual ultimate consumption did not vary as widely as did production. There were stocks of steel, and of manufactures of steel, in machinery, implements, hardware, etc., carried from 1920 to 1921, in the hands of manufacturers, wholesalers and retailers.

As to production, or steel mill operation, the year 1922 naturally divided itself into three parts. In the first quarter there was rapidly increasing producing, ingot output having been at less than 20,000,000 tons a year in the preceding December, and rising to a rate of about 35,000,000 tons on April 1st, the date of the coal strike. In the next six months production averaged about 34,500,000 a

COMPOSITE PIG IRON.

Computation for January 1, 1923:

One ton Bessemer, valley	$27.50
Two tons basic, valley (25.00)	50.00
One ton No. 2 fdy., valley	27.00
One ton No. 2X fdy., Philadelphia	27.76
One ton No. 2X fdy., Buffalo	26.75
One ton No. 2 fdy., Cleveland	27.50
One ton No. 2 fdy., Chicago	28.61
Two tons No. 2 Southern foundry, Cincinnati (27.05)	54.10
Total, ten tons	269.22
One ton	**26.922**

Averaged from daily quotations.

	1922.	1921.	1920.	1919.	1918.	1917.
Jan.	19.71	32.62	39.84	32.39	34.19	30.75
Feb.	19.31	29.95	42.72	32.39	34.19	30.95
Mar.	19.26	27.35	43.05	30.47	34.14	34.53
April	20.77	25.80	43.62	28.05	33.88	39.14
May	23.91	24.67	44.43	27.74	33.88	42.04
June	24.29	23.08	44.80	27.15	33.91	48.16
July	24.54	21.57	45.60	27.66	34.04	52.56
Aug.	27.74	20.29	47.41	27.99	34.04	51.93
Sept.	32.48	20.99	48.98	28.26	34.31	47.28
Oct.	31.82	21.15	47.07	28.65	35.36	34.17
Nov.	29.47	20.92	41.80	31.48	35.39	34.19
Dec.	26.73	20.42	36.31	36.73	35.23	34.19
Year	25.00	24.05	43.80	29.91	34.38	39.99

Annual Averages.

1916	20.31	1913	15.42
1915	14.15	1912	14.32
1914	13.52	1911	14.00

COMPOSITE STEEL.

Computation for January 1, 1923:

Pounds.	Group.	Av. Price.	Extension.
2½	Bars	2.00	5.000
1½	Plates	2.00	3.000
1½	Shapes	2.00	3.000
1½	Pipe (1-3)	3.30	4.950
1½	Wire nails	2.70	4.050
1	Sheets (28 ga.)	3.35	3.350
½	Tin plate	4.75	2.375
Total, ten pounds			25.725
One pound			**2.5725**

Averaged from daily quotations.

	1922.	1921.	1920.	1919.	1918.	1917.
Jan.	2.16	3.25	3.35	3.58	3.80	3.55
Feb.	2.14	3.10	3.58	3.58	3.80	3.65
Mar.	2.09	2.94	3.78	3.47	3.80	3.95
April	2.16	2.93	3.77	3.25	3.80	4.20
May	2.18	2.93	3.71	3.25	3.80	4.53
June	2.22	2.83	3.67	3.25	3.80	5.16
July	2.23	2.63	3.70	3.25	3.80	5.16
Aug	2.36	2.48	3.80	3.25	3.80	5.72
Sept.	2.51	2.37	3.80	3.22	3.80	5.19
Oct.	2.57	2.31	3.67	3.23	3.80	4.14
Nov.	2.57	2.28	3.50	3.25	3.80	3.82
Dec.	2.57	2.23	3.28	3.25	3.67	3.80
Aver.	2.31	2.69	3.63	3.32	3.79	4.46

Annual Averages.

1916	2.80	1915	1.63	1914	1.52
1913	1.72	1912	1.62	1911	1.66

year, there being a gradual increase in May and June, a sharp recession from the middle of July to the end of August and then a quick recovery in September. The third period was the last quarter, during which production ran quite uniformly at about 40,000,000 tons a year.

Finished steel prices reached their lowest point, in the main, late in February and early in March of 1922. Sheets however, had gotten down to a 2.75c basis late in August, 1921, opening 1922 at 3.00c, which was their low point for the year. Bars, shapes and plates reached an open market level of 1.35c early in March, 1922, some sales being made at 1.30c or less. Such sales, however, were chiefly by mills removed from Pittsburgh selling at delivered prices figuring back to less than 1.35c, Pittsburgh basis. Only in a few cases, probably did Pittsburgh mills actually sell at less than 1.35c, mill.

With increasing demand the market tended to stiffen during the second quarter. In August, when production was declining on account of coal and coke scarcity and consumptive demands were heavy on account of improvement in general business conditions, prices tended to rise sharply. On many products independent mills secured prices well above those of the Steel Corporation, but as the independents receded later the higher prices may be regarded as involving delivery premiums. The general market advanced from the low point by somewhat more than $10.00 a net ton. About half of this advance was absorbed in higher fuel costs and in the general 20% wage advance of September 1st at mills and furnaces. There was a partial offset in the freight rate reductions of

PIG IRON PRICES

(Averaged from daily quotations; at Philadelphia, Buffalo, Cleveland and Chicago, prices are delivered.)

	Bessemer, Valley	Basic, No. 2 fdy. Valley		Basic. Phila.	No. 2X Phila.	No.2Xfdy. Buffalo.	No. 2 fdy. Cleveland.	No. 2 fdy. Chicago.	No. 2 fdy. Birmingham.	Ferro-manganese.*	Comp. Pig Iron.
Feb. 1921	29.63	27.71	28.29	29.28	30.73	30.17	30.15	30.87	27.50	90.00	29.95
Mar. ...	26.70	24.41	25.89	26.54	28.03	29.01	27.70	27.07	25.52	90.00	27.35
April ..	25.00	23.00	24.81	25.47	26.38	27.17	26.77	25.32	23.77	90.00	25.80
May ...	24.32	22.15	23.60	23.70	24.96	25.40	25.56	23.70	21.80	85.00	24.47
June ...	22.88	21.20	22.42	23.54	24.21	22.45	24.17	22.08	20.48	75.00	23.08
July ...	21.34	19.52	20.40	22.40	23.00	20.68	21.66	19.98	20.18	70.00	21.57
Aug. ...	20.00	18.22	19.59	19.70	20.42	19.48	20.56	19.64	18.70	68.50	20.29
Sept. ..	20.00	19.00	20.86	19.14	20.84	20.08	20.56	22.18	19.06	66.00	20.99
Oct. ...	20.00	19.24	21.00	20.50	21.40	20.50	20.56	22.35	19.00	60.00	21.15
Nov. ...	20.00	19.00	20.78	20.50	21.93	19.82	20.56	21.79	18.56	60.00	20.92
Dec. ...	20.00	19.00	20.00	20.45	21.88	19.38	20.56	20.53	17.31	59.00	20.42
Jan. 1922	19.62	18.19	19.38	20.25	21.34	19.75	19.92	19.84	15.96	58.00	19.71
Feb.	19.40	18.00	18.92	19.84	21.34	19.06	19.56	19.18	15.33	65.75	19.31
Mar. ...	19.02	17.89	18.87	19.84	20.73	18.56	19.56	20.48	15.31	62.50†	19.26
April ..	20.88	19.98	20.74	20.75	22.90	20.89	20.76	21.06	15.74	68.00†	20.77
May ...	25.08	24.62	24.00	23.37	25.51	23.44	24.56	23.05	17.63	70.00†	23.91
June ..	25.00	25.00	24.00	25.00	26.62	22.96	24.56	23.83	18.44	68.50†	24.29
July ...	25.00	24.32	24.20	25.54	28.00	25.05	24.56	24.73	18.56	69.00†	24.54
Aug. ...	27.74	26.17	29.04	29.00	31.69	30.42	29.16	28.17	20.37	70.00†	27.74
Sept. ..	33.76	30.08	35.02	30.90	34.76	34.13	35.50	32.53	25.40	77.00†	32.48
Oct. ...	33.23	30.23	31.63	29.50	32.69	31.60	34.27	32.15	27.04	100.00†	31.82
Nov. ...	31.70	28.28	28.78	28.14	30.78	28.41	31.34	30.65	24.12	100.00‡	29.46
Dec. ...	27.78	24.96	25.92	27.50	28.53	26.19	27.38	28.09	22.70	100.00‡	26.73
Yearly averages.											
1913 ...	16.26	14.77	14.87	13.23	16.56	14.87	15.37	16.39	11.73	57.87	15.42
1914 ...	13.99	12.89	13.02	14.02	14.59	12.84	13.76	14.15	10.25	55.80	13.52
1915 ...	14.90	13.78	13.81	14.88	15.25	13.98	14.31	14.46	10.59	92.21	14.15
1916 ...	23.05	19.87	20.16	20.96	21.20	20.63	20.40	20.67	15.84	164.12	20.31
1917 ...	42.67	39.10	39.89	39.37	40.80	40.41	40.61	41.06	35.11	309.17	39.99
1918 ...	35.46	32.50	33.27	34.10	35.56	33.97	33.62	33.77	33.20	245.83	34.38
1919 ...	29.62	27.49	28.63	30.02	32.75	30.53	29.14	29.37	28.34	132.16	29.91
1920 ...	42.85	42.05	43.25	43.26	46.74	45.23	43.66	43.25	40.43	172.33	43.80
1921 ...	23.49	21.87	23.30	23.56	24.74	23.78	24.34	24.05	21.92	76.54	24.05
1922 ...	25.68	23.98	25.04	24.88	27.07	25.04	25.93	25.31	19.72	75.33	25.00

* Delivered. † Seaboard. ‡ F. o. b. furnace.

July 1st, but again it must be considered that at the low points some products had been selling at a loss. Thus the price advances of the year did not provide anything like large profits. A particularly awkward circumstance was that much low priced business had to be carried over to the period in which manufacturing costs were higher, and this business was accordingly filled at a loss, September earnings showings being particularly poor.

THE OLD YEAR AND THE NEW.

In passing from 1922 to 1923 the steel making industry occupies the interesting position of passing from a decidedly unsatisfactory year to one that promises fairly good results, yet without there being any particular change in general conditions. The difference is made by the fact that old and low priced business is worked off, while a fairly high rate of production has been established. In the last three months of the year steel ingot production was, as noted above, at a rate of about 40,000,000 tons a year, whereas the year's production was only about 34,000,000 tons. The steel industry should do fairly well with a 40,000,000 ton production rate. It is true that, on account of the great increase in capacity, this represents only a trifle more than a 75% operating rate for the whole industry, but on the other hand the rate is one-third greater than production in 1912 and 1913, the two biggest tonnage years before the war, and such an increase, in view of various unsettled conditions, can hardly be considered unsatisfactory.

Without any change in market prices, realized prices on shipments are to be higher, since the low priced business has been disposed of. Furthermore, while fundamental items of cost are unlikely to decline, except possibly in fuel, production costs may decrease somewhat on account of steady and regular operation.

While there may be some building up of stocks by some manufacturing consumers, in general the current production of steel is represented in actual consumption requirements. The consuming lines are, in the main, very comfortably busy. In pipe there are no stocks at all, whereas it has not been uncommon for mills to have stocks equal to a month's production, and normal stocks of jobbers probably represent more than a month's production. Stocks of nails are likewise low. In each case there is a reflection of the great boom in garage and dwelling house construction, which promises to continue in the new year.

Altogether, the position of the steel industry is a sound one at this time. For activity and reasonable profits all that is requisite is a continuance of the present conditions.

The common prediction is that the steel industry is assured of continued production at its recent rate for six months in 1923, but this should not infer necessarily that there is definitely a poor prospect for the second half of the year. One cannot well look so far ahead. The principal element that may interfere with the six-month prediction is coal. There may be a strike April 1st that will interfere with steel production and on the other hand it may be found that buyers are taking extra quantities of steel in the first quarter, in anticipation of a strike, in which case the half year's requirements ought not to be measured by the present rate of demand.

PIG IRON

Production of pig iron in 1922 was about 27,000,000 gross tons. The market had a very sharp rise, reaching its top about the middle of September, when there was an acute scarcity. As prices fell thereafter buyers refrained from covering, except for their immediate wants, until early in December, when there was a conservative and substantial buying movement for first quarter, after which furnaces put up their prices about $2.00 a ton, the advanced prices being supported by order books and also by a rise in coke. Connellsville coke was weak at $6.50 early in December but with a sudden burst of buying by eastern distributors for domestic consumption rose to a top of $9.50, receding to about $9.00 at the end of the month. Furnaces contracted at $7.00 to $7.25, perhaps in one or two cases at $7.50, for first quarter, this being more than they had expected to pay when they were making their first quarter sales of iron.

PIG IRON PRODUCTION

Output of coke and anthracite pig iron in December amounted to about 3,100,000 tons being the largest output for a single month since October 1920. The average daily rate was 99,577 tons against 94,990 tons in November, according to furnace returns to Iron Age. On January 1st 253 blast furnaces active had an estimated capacity of 101,200 tons a day which is at the rate of 36,938,000 tons a year. Adding charcoal furnaces, operations at the beginning of the year 1923 were at the rate of approximately 37,125,000 tons. In December production was at the rate of about 36,350,000 tons a year and, including charcoal iron, the rate was 36,530,000 tons a year.

Production of coke and anthracite iron in 1922 was approximately 26,900,000 tons and including charcoal iron the total was approximately 27,100,000 tons. In the first half of 1922, according to the American Iron & Steel Institute, production of all kinds of pig iron was 12,191,001 tons. The indication is that in the second half of the year total production was 14,809,000 tons, making the total as above 27,100,000 tons, of which 21,100,000 tons are credited to steel companies and 6,000,000 tons to merchant furnaces. In 1921 the total production of all kinds of pig iron was 16,688,126 tons. Thus the increase in 1923 over the preceding year was 60% but the 1922 production was the smallest, with the exception of 1921, of any year since 1914. The largest production in any one year was 39,054,644 tons in 1918.

The average daily rate of output of all kinds of pig iron in 1922 was 74,246 tons. Production of domestic ferromanganese in 1922 is estimated 150,000 gross tons and spiegeleisen 67,000 gross tons. In 1921 ferromanganese output, of domestic origin, was 103,755 tons and spiegeleisen 56,423 tons.

The following table shows the estimated annual rates of production of coke and anthracite iron in each month during the last three years.

Estimated annual rates.

	1922.	1921.	1920.
Jan. ...	19,300,000	28,750,000	35,850,000
Feb. ..	21,300,000	25,550,000	37,850,000
Mar. ..	24,000,000	19,000,000	40,050,000
April ..	25,250,000	14,600,000	33,650,000
May ...	27,250,000	14,450,000	35,550,000
June ...	28,900,000	13,000,000	37,400,000
July ...	28,500,000	10,200,000	36,450,000
Aug. ..	21,550,000	11,250,000	37,400,000
Sept. ..	24,950,000	13,000,000	38,400,000
Oct. ..	31,350,000	14,600,000	38,950,000
Nov. ..	34,900,000	17,200,000	36,000,000
Dec. ..	36,350,000	19,400,000	36,000,000
Estimated capacity			45,000,000

Yearly Totals.

1921 ..	16,650,000	1916 ..	39,434,797
1920 ..	36,925,987	1915 ..	29,916,213
1919 ..	31,015,364	1914 ..	23,332,244
1918 ..	39,054,644	1913 ..	30,966,152
1917 ..	38,621,216	1912 ..	29,726,937

UNFINISHED STEEL AND IRON BARS.

Averaged from daily quotations.

	Billets.	Sheet Bars.	Rods.	—Iron bars, deliv.—		
1921—	Pitts.	Pitts.	Pitts.	Phila.	Pitts.	Ch'go.
Jan.	45.00	47.00	57.00	2.85	3.06	2.68
Feb.	42.00	42.00	57.00	2.70	2.70	2.62
Mar.	39.00	39.00	47.00	2.56	2.60	2.60
April	37.00	38.50	47.50	2.35	2.45	2.45
May	37.00	39.00	48.00	2.35	2.35	2.38
June	35.00	36.00	48.00	2.20	2.25	2.25
July	32.00	33.00	43.00	2.07	2.20	1.94
Aug.	30.25	30.50	42.00	2.00	2.08	1.75
Sept.	30.00	30.00	40.50	1.97	2.00	1.75
Oct.	30.00	30.00	40.00	1.92	2.00	1.75
Nov.	29.00	30.00	40.00	1.90	1.97	1.70
Dec.	29.00	29.00	38.00	1.85	1.95	1.70
1922—						
Jan.	29.00	29.00	37.00	1.80	1.82	1.60
Feb.	28.50	29.00	36.00	1.75	1.78	1.60
Mar.	28.00	29.00	36.00	1.70	1.70	1.54
April	30.00	31.75	38.00	1.81	1.75	1.57
May	34.00	35.00	38.00	1.86	1.83	1.65
June	35.00	35.00	38.00	1.96	1.95	1.73
July	35.00	35.00	40.00	2.12	2.13	1.85
Aug.	37.00	37.00	43.00	2.16	2.15	1.95
Sept.	39.00	40.00	45.00	2.48	2.25	2.25
Oct.	39.50	39.50	45.00	2.43	2.40	2.50
Nov.	37.75	37.75	45.00	2.37	2.40	2.50
Dec.	36.50	36.50	45.00	2.32	2.35	2.50
Yearly averages.						
1913.	25.56	26.35	28.39	1.51	1.59	1.45
1914.	20.08	20.84	25.50	1.20	1.27	1.07
1915.	23.14	23.46	28.28	1.37	1.32	1.24
1916.	45.02	45.10	57.58	2.57	2.59	2.31
1917.	71.15	75.87	80.23	4.06	4.09	3.78
1918.	47.30	50.80	57.00	3.71	3.50	3.50
1919.	40.52	43.77	53.11	2.94	2.80	2.69
1920.	57.79	65.21	70.00	4.35	4.13	3.65
1921.	34.60	35.33	45.67	2.23	2.30	2.13
1922.	34.10	34.54	40.50	2.03	2.04	1.94

STEEL PRODUCTION

Steel ingot output in December of the 30 companies which report to the American Iron & Steel Institute was 2,779,890 tons. This is at the rate of 111,196 tons a day whereas in November the daily rate was 111,126 tons, 25 active days being taken in November and 26 in December. Thus there was a slight gain in the daily rate of output in the closing month of 1922 instead of a decrease as indicated on the surface of the full returns for the month.

All Companies.

If the steel companies which do not report to the Institute operated at the same average rate the total production of ingots by all steel companies in December was approximately 3,176,000 tons which was at a daily rate of 127,040 tons. In November the average daily rate was slightly over 127,000 tons, pointing to an actual increase of 38 tons a day in December.

It is estimated that the U. S. Steel Corporation, operating at an average rate of a little more than 78½% of capacity produced ingots at the rate of a little over 57,000 tons a day whereas in November the Steel Corporation operated at the rate of 59,130 tons a day. Thus the Corporation in the closing month of the year actually lost at the rate of 1,730 tons a day.

Independent Companies.

On the other hand independent steel companies, as was thought probable, increased operations slightly, the total December output for such companies being 1,740,000 tons or at the daily rate of slightly under 70,000 tons. The daily rate in November was 67,872 tons, showing a net daily gain of 2,128 tons, more than compensating for the decrease by the Steel Corporation.

63% Active in 1922.

The industry as a whole therefore employed about 75% of capacity in December; the independents a little over 72% and the Steel Corporation a little over 78½%. In November the industry as a whole utilized a little over 74½%; the U. S. Steel Corporation, 81%, and independents, about 70%. In the year 1922

STEEL MAKING PIG IRON AVERAGES

Bessemer and basic pig iron averages compiled by Messrs. W. P. Snyder & Company from sales in the valley market of 1,000 tons and over.

	Bessemer.			Basic.		
	1922.	1921.	1920.	1922.	1921.	1920.
Jan.	19.59	32.00	39.07	18.19	30.00	38.48
Feb.	19.50	27.00	41.54	17.75	25.00	41.21
Mar.	19.39	26.20	42.00	18.00	24.50	41.50
April	20.54	25.00	42.32	19.30	22.50	42.81
May	24.40	24.25	42.60	24.91	21.87	43.48
June	25.00	23.00	43.49	25.00	20.70	44.01
July	25.00	20.88	45.81	24.56	18.80	46.01
Aug.	28.67	20.00	47.39	25.41	18.33	48.37
Sept.	33.50	20.00	48.50	32.93	19.25	48.50
Oct.	33.50	20.00	47.50	30.00	19.00	42.42
Nov.	31.75	20.00	39.30	27.60	19.00	37.23
Dec.	28.10	20.00	35.00	24.57	18.69	33.00
Year	25.75	23.19	42.86	24.02	21.47	42.25

All prices are f.o.b. valley furnace; freight, August 26, 1920, $1.96; August 1, 1922, $1.77.

STEEL CORPORATION BOOKINGS

Changes in unfilled tonnage with shipments and bookings estimated in percentage of capacity.

	Shipments.	Bookings.	Difference.	Difference.
1921.	%	%	%	Tons.
Nov.	52	49	— 3	— 362,287
Dec.	48	49	+ 1	+ 17,872
1922.				
Jan.	47	45	— 2	— 26,736
Feb.	57	49	— 8	— 100,609
Mar.	65	90	+25	+ 353,079
April ...	70	115	+45	+ 602,769
May	75	86	+11	+ 157,311
June	75	103	+28	+ 381,303
July	75	86	+11	+ 140,630
Aug.	67	79	+12	+ 173,944
Sept. ...	67	121	+54	+ 741,502
Oct.	76	91	+15	+ 210,680
Nov.	81	76	— 5	— 62,045
Dec.	80	73	— 7	— 94,539

Unfilled Orders.

At end of the quarter, last three figures omitted.	First.	Second.	Third.	Fourth.
1905	5,579	4,829	5,865	7,605
1906 .. .	7,018	6,809	7,936	8,489
1907	8,043	7,603	6,425	4,642
1908	3,765	3,313	3,421	3,603
1909	3,542	4,057	4,796	5,927
1910	5,402	4,257	3,158	2,674
1911	3,447	3,361	3,611	5,084
1912	5,304	5,807	6,551	7,932
1913	7,468	5,807	5,003	4,282
1914	4,653	4,032	3,787	3,836
1915	4,255	4,678	5,317	7,806
1916	9,331	9,640	9,522	11,547
1917	11,711	11,383	9,833	9,381
1918	9,056	8,918	8,297	7,379
1919	5,430	4,892	6,284	8,265
1920	9,892	10,978	10,374	8,148
1921	6,284	5,117	4,560	4,268
1922	4,494	5,635	6,691	....

the average rate of production was 63% of capacity for the whole industry.

The annual rate of production of all companies in December was slightly over 39,500,000 tons, whereas in November the annual rate was a little under 39,500,000 tons. The thirty companies which report to the American Iron & Steel Institute in the year 1922 produced 29,116,453 tons. If the other steel companies produced at the same average rate, the total production of ingots in 1922 by all companies was 33,275,000 tons.

The following table shows the monthly production reported by the 30 companies which make returns to the American Iron and Steel Institute, as compared with the corresponding months last year, also the estimated annual rate of production by all steel companies for each month during the years 1922 and 1921:

	Month's production as reported.		Estimate of total annual rate. (000 omitted)	
	1922.	1921.	1922.	1921.
Jan.	1,593,482	2,203,180	22,750	29,100
Feb.	1,745,022	1,749,477	26,850	25,400
Mar.	2,370,751	1,570,978	32,550	21,000
April	2,444,513	1,213,958	35,450	16,800
May	2,711,141	1,265,850	36,400	18,000
June	2,634,477	1,003,406	36,600	14,000
July	2,487,104	803,376	36,000	11,100
Aug.	2,214,582	1,138,071	30,000	15,800
Sept.	2,373,779	1,174,740	33,000	16,850
Oct.	2,872,415	1,616,810	40,000	23,000
Nov.	2,889,297	1,660,001	40,000	23,300
Dec.	2,779,890	1,427,093	39,500	19,750

Yearly Totals.

1922 ...	29,116,453		
1921 ...	16,826,946	1916 ...	41,401,917
1920 ...	40,881,392	1915 ...	31,284,212
1919 ...	33,694,795	1914 ...	22,[illegible]784
1918 ...	43,051,022	1913 ...	30,280,130
1917 ...	43,619,200	1912 ...	30,284,682

FINISHED STEEL PRICES

(Averaged from daily quotations, f. o.b. Pittsburgh).

	Shapes.	Plates.	Bars.	Pipe.	Wire.	Grooved Wire Nails.	Steel Skelp.	Sheets Black	Sheets Galv.	Sheets Blue Annld.	Tin plate.	Comp. Fin Steel.
Feb. 1921	2.30	2.35	2.13	57½	3.00	3.19	2.30	4.22	5.45	3.30	7.00	3.10
Mar.	2.10	2.10	2.00	57½	3.00	3.01	2.20	3.95	4.98	3.00	7.00	2.94
April ...	2.16	2.16	2.06	61	3.00	3.15	2.15	3.90	4.85	3.05	6.54	2.93
May	2.20	2.20	2.10	62½	3.00	3.25	2.20	4.00	5.00	3.10	6.25	2.93
June	2.15	2.06	2.08	62½	2.75	3.00	2.10	3.86	4.80	2.95	5.90	2.83
July	1.96	1.93	1.88	64	2.56	2.81	1.90	3.46	4.40	2.55	5.75	2.63
Aug.	1.84	1.84	1.75	64½	2.50	2.75	1.75	2.94	3.94	2.30	5.25	2.48
Sept. ...	1.68	1.67	1.67	66⅝	2.57	2.85	1.67	2.83	3.83	2.33	5.00	2.37
Oct.	1.60	1.59	1.60	68½	2.60	2.90	1.65	3.00	4.00	2.25	4.75	2.31
Nov.	1.60	1.51	1.56	68½	2.60	2.90	1.60	2.92	3.92	2.25	4.75	2.28
Dec.	1.57	1.50	1.53	69¾	2.44	2.70	1.52	3.00	4.00	2.25	4.72	2.23
Jan. 1922	1.50	1.50	1.50	71	2.25	2.50	1.50	3.00	4.00	2.25	4.75	2.16
Feb.	1.46	1.46	1.46	71	2.22	2.47	1.46	3.00	4.00	2.25	4.75	2.14
Mar.	1.41	1.39	1.41	71	2.25	2.40	1.40	3.00	4.00	2.25	4.61	2.09
April	1.50	1.49	1.50	71	2.25	2.40	1.50	3.12	4.12	2.37	4.66	2.16
May	1.52	1.52	1.55	71	2.25	2.40	1.55	3.15	4.15	2.40	4.72	2.18
June	1.60	1.60	1.60	71	2.25	2.40	1.60	3.15	4.15	2.40	4.75	2.22
July	1.62	1.62	1.62	71	2.25	2.40	1.62	3.15	4.15	2.40	4.75	2.23
Aug.	1.82	1.82	1.80	70⅛	2.26	2.41	1.80	3.27	4.27	2.46	4.75	2.36
Sept.	2.00	2.00	1.92	68	2.37	2.62	2.10	3.35	4.35	2.60	4.75	2.51
Oct.	2.00	2.08	2.00	66⅞	2.45	2.70	2.05	3.35	4.35	2.70	4.75	2.57
Nov.	2.00	2.00	2.00	66	2.45	2.70	2.00	3.35	4.35	2.55	4.75	2.57
Dec.	2.00	2.00	2.00	66	2.45	2.70	2.00	3.35	4.35	2.50	4.75	2.57
Yearly averages:												
1913	1.42	1.41	1.38	79¾	1.50	1.70	1.39	2.20	3.28	1.68	3.56	1.72
1914	1.16	1.14	1.15	80	1.37	1.57	1.17	1.89	2.87	1.38	3.35	1.52
1915	1.30	1.29	1.31	79¼	1.48	1.66	1.27	1.93	3.85	1.49	3.19	1.63
1916	2.50	2.82	2.48	70⅞	2.45	2.53	2.34	3.06	4.85	2.99	5.34	2.80
1917	3.66	5.21	3.49	52⅛	3.48	3.58	3.95	6.29	8.21	6.15	7.85	4.46
1918	2.99	3.24	2.89	51⅛	3.25	3.50	2.89	4.98	6.24	4.23	7.72	3.79
1919	2.53	2.71	2.43	56¾	3.06	3.31	2.51	4.43	5.78	3.63	7.08	3.32
1920	2.99	3.20	2.99	55⅝	3.40	3.67	3.00	5.85	7.39	5.06	7.29	3.63
1921	1.07	1.96	1.89	63¾	2.77	2.98	1.96	3.54	4.57	2.74	5.83	2.69
1922	1.70	1.71	1.70	69½	2.31	2.51	1.72	3.19	4.19	2.43	4.73	2.31

SEMI-FINISHED STEEL

Early in December the Carnegie Steel Company announced a price of $36.50 on its quarterly adjustment sheet bar contracts, and this figure became adopted as the general market for slabs, billets and sheet bars. The last named had been going at $40.00 for a short time, when steel was particularly scarce and when sheets were commanding 3.60c to 3.75c in the open market. The market for the first quarter of 1922 had been $29.00, so that there is a rise of $7.50 in a year.

FINISHED STEEL

Bars, shapes and plates, which have been showing irregularities from the ordinary quotation of 2.00c stiffened up in December, closing the month rather firm at that price, bars being indeed stiff. Mills are booked well ahead in bars, a moderate distance ahead in shapes, and hardly at all in plates, except for the large volume of car plates, there having been orders for about 160,000 freight cars in 1922, with probably less than half the cars made or started by the end of the year.

Hoops, bands and strips were in better demand in December, but with heavier production the premium prices sometimes obtained in October and November disappeared, and the market closed at 2.75c to 2.90c, according to tonnage and gauge.

The sheet market underwent a sharp improvement during December. Some mills entered December with less than a month's production booked, but closed in much better condition, and any price weakness there may have been disappeared. This was in galvanized and common black. In automobile and other special finish sheets mills have had good sized order books right along, and at the opening of the new year some were comfortably booked for three months. The market is firm as follows: Blue annealed, 2.50c; black, 3.35c; galvanized, 4.35c; automobile sheets, 4.70c to 5.00c, depending on delivery and other conditions.

IMPORTANT STEEL PRICE CHANGES

At end of 1920 prices of independent steel producers had declined to Industrial Board schedule of Mar. 21, 1919, to which U. S. Steel Corporation had meanwhile adhered. These prices are given under date of Jan. 1, 1921, subsequent changes being in open market. Only the more important changes are listed.

BARS.

Jan. 1, 1921	2.35	Nov. 9	1.55
Feb. 11	2.00	Dec. 19	1.50
April 13	2.10	Feb. 18, 1922	1.40
June 24	2.00	Mar. 29	1.50
July 5	1.90	May 17	1.60
July 26	1.75	July 26	1.70
Sept. 9, 1921	1.65	Aug. 9	1.80
Sept. 27	1.60	Aug. 25	1.90
		Sept. 27,	2.00

PLATES

Jan. 1, 1921	2.65	Sept. 9	1.65
Feb. 10	2.40	Sept. 27	1.60
Feb. 17	2.25	Oct. 27	1.55
Feb. 23	2.10	Nov. 9	1.50
April 13	2.20	Feb. 18, 1922	1.40
June 10	2.00	April 5	1.50
July 15	1.90	May 25	1.60
July 26	1.85	July 26	1.70
Aug. 25, 1921	1.80	Aug. 9	1.80
Sept. 2	1.75	Aug. 25	2.00

SHAPES

Jan. 1, 1921	2.45	Sept. 9	1.70
Feb. 11	2.25	Sept. 26	1.65
Feb. 17	2.20	Sept. 27	1.60
Feb. 28	2.10	Dec. 21	1.50
April 13	2.20	Feb. 18, 1922	1.40
June 24	2.00	Mar. 9	1.50
July 22	1.90	May 25	1.60
July 26	1.85	July 26	1.70
Aug. 25, 1921	1.80	Aug. 9	1.80
Sept. 2	1.75	Aug. 25	2.00

STEEL PIPE

Jan. 1, 1921	57½%	July 9, 1921	64½%
Mar. 24	58½%	Sept. 16	68½%
April 7	59½%	Dec. 16,	71%
April 13	62½%	Aug. 23, 1922	68%
		Oct. 19, 1922	66%

WIRE NAILS

Jan. 1, 1921	3.25	Sept. 12	2.90
Feb. 17	3.10	Dec. 9	2.75
Mar. 4	3.00	Dec. 21	2.50
April 13	3.25	Feb. 21, 1922	2.40
June 1	3.00	Aug. 30	2.60
July 9, 1921	2.75	Sept. 27,	2.70

BLACK SHEETS

Jan. 1, 1921	4.35	Aug. 1	3.00
Feb. 11	4.15	Aug. 25	2.75
Mar. 8	4.00	Sept. 22	3.00
Mar. 17	3.85	Nov. 1	2.90
April 13	4.00	Nov. 25	3.00
July 5	3.50	April 7, 1922	3.15
July 26, 1921	3.25	Aug. 14	3.35

TIN PLATE

Jan. 1, 1921	7.00	Sept. 15	5.00
April 13,	6.25	Sept. 19	4.75
June 7	6.00	Mar. 21, 1922	4.60
June 14	5.75	April 5	4.65
Aug. 1, 1921	5.25	April 24	4.70
		May 17	4.75

BLUE ANNEALED SHEETS

Jan. 1, 1921	3.55	Aug. 16	2.25
Feb. 11	3.35	Sept. 22	2.50
Feb. 16	3.20	Nov. 1	2.25
Mar. 8	3.00	April 7, 1922	2.40
April 13	3.10	Aug. 14	2.50
June 10	2.90	Sept. 20,	2.60
July 6, 1921	2.65	Nov. 23,	2.50
Aug. 2	2.40		

GALVANIZED SHEETS

Jan. 1, 1921	5.70	July 22	4.25
Feb. 11	5.55	Aug. 2	4.00
Feb. 16	5.35	Aug. 25	3.75
Feb. 24	5.25	Sept. 22	4.00
Mar. 8	5.10	Nov. 1	3.90
Mar. 17	5.00	Nov. 25	4.00
June 22	4.75	April 7, 1922	4.15
July 5, 1921	4.50	Aug. 14,	4.35

Production of tin and terne plate in 1922 was about 1,400,000 gross tons, or only a trifle more than 100,000 tons under the record, made in 1917. As exports were over 200,000 tons in 1917 and less than 100,000 tons in 1922 the domestic consumption was evidently greater in 1922 than in 1917, and there is the further point that the leading interest made up considerable stocks late in 1921 which were shipped in the early weeks of 1922. Prospects are that domestic consumption will be greater still in 1923, while there is always a chance of the export business improving. The price is well maintained at $4.75.

Pipe mills continued under heavy delivery pressure in December, with no stocks and with jobbers practically bare of stocks. Butt weld pipe is certain to be in very heavy demand as long as the boom in garage and dwelling house construction continues, and the outlook is for heavy consumption by the oil trade, including both casing and line pipe. The Wyoming field seems to need additional pipe line, which would run well in mileage.

FABRICATED STEEL

Sales of fabricated structural steel in December, 1922, verbally reported amounted to 86,417 tons. Adding 10% for the small tonnages on supplementary contracts reported only monthly, would give a total for December of a little over 95,000 tons, equivalent to about 45% of shop capacity against 46.8% of capacity in November, reported by the Government.

In the first three months of the year the total orders reported were a little over 290,000 tons, at an average rate of about 97,000 tons a month. In the last nine months, with December estimated, the tonnage reported to the United States Government was about 1,265,000 tons or a total of 1,555,000 tons during the year by shops which have a capacity of 212,000 tons approximately a month, about 83% of the total capacity. Assuming that other fabricators which did not report operated at the same rate as those that did report, the total domestic sales in 1922 were approximately 1,885,000 tons. Allowing for discrepancies and export business not included in domestic returns the total sales by fabri-

Allegheny Steel
and
Allegheny Iron

SHEETS BOILER TUBES
PLATES WASHERS
STEEL CASTINGS
Hot and Cold Pressed Stampings

ALLEGHENY STEEL COMPANY
PITTSBURGH, PA.

SOLICITING AGENTS
501 Fifth Ave., New York 1436 Dime Bank Bldg., Detroit, Mich.
Steel Sales Corporation, 129 South Jefferson Street, Chicago.

cators in 1922 were very close to 2,000,000 tons.

As the total capacity of all the fabricating shops in the country, according to revised estimates made by the Government is now 3,000,000 tons annually, the indication is that the average rate of fabricated bookings in the last year was equivalent to a little less than 70% of shop capacity. Because of the radical change in estimates of shop capacity by the United States Government and the different methods pursued in reporting monthly sales, no reliable comparison can be made with orders booked in previous years at least so far as percentages of capacity are concerned. From records kept by the writer, however, since 1906, before the Bridge Builders Society began to function, the heaviest yearly sales in seventeen years were 1,504,125 tons in 1912, 1,500,000 tons in 1906 and 1,474,000 tons in 1909.

It is evident therefore that sales made in 1922 were the largest in any year in the history of that industry.

According to a survey made by the Department of Commerce, the capacity of fabricated structural steel shops since 1913 shows a gain of 45,025 tons monthly or about 22%. The gain of 10,865 tons monthly in 1922 over 1921 is because of including fabricating shops belonging to some shipbuilding companies which entered into competition for general orders during the last year. It is evident, therefore, that the capacity of structural steel shops is very elastic, contracting and expanding according to circumstances. Fabricated capacity which is used in monthly computation of fabricated steel sales is confined to shops which fabricate steel used in the building of highway and railroad bridges, in buildings, including apartment houses, hotels, commercial buildings and manufacturing plants, and excluding the fabricating work done in shops of car and locomotive builders, shipyards and a large portion of the tank shops. The Government figures also are based on shops running single turn; of course the capacity might be increased largely in time of stress when it is deemed advisable to run double turn.

The following table shows the percentage of fabricated steel orders to total shop capacity, sold by fabricators throughout the country each month from the beginning of 1917 to end of March, 1922 as reported by the Bridge Builders and Structural Society. Subsequent orders reported by the Department of Commerce, based upon revised monthly capacity.

	1922.	1921.	1920.	1919.	1918.	1917.
Jan.	40%	18%	75%	12%	53%	61½
Feb.	43½	14	95	12½	55½	59
Mar.	77	29	83½	17½	47	68
April	91.5	31	68	24½	64	61
May	82.1	28	61½	49	60	56½
June	73.2	37	50	65	56	47½
July	68.0	33½	50	74	116½	41½
Aug.	69.3	33	40	78½	57	38
Sept.	65.0	48	43	78½	60	29
Oct.	58.3	54	25½	77½	43	61½
Nov.	46.8	55	27½	69	27	77
Dec.	*45	40	26	85	29	114
Av.	*63.23	35	53¾	53½	55½	59½

* Estimated.

The following table, prepared by the Government, shows the total monthly capacity for each year as reported by 143 firms, representing about 83% of the present estimated capacity of the United States, and the increase over the preceding year and over 1913:

	Total monthly capacity	Increase over previous year	Increase over 1913
1913	163,415	.....	.....
1914	164,265	850	850
1915	166,500	2,235	3,085
1916	170,900	4,400	7,485
1917	175,935	5,035	12,520
1918	185,060	9,125	21,645
1919	188,800	3,740	25,385
1920	194,675	5,875	31,260
1921	197,575	2,900	34,160
1922	208,440	10,865	45,025

SCRAP

Prices of iron and steel scrap advanced rather sharply in the first four or five months of 1922, partly by reason of increasing operations by consumers and partly by reason of shortage of pig iron at steel mills produced by the coal strike. Then in September further advances occurred. The market weakened a trifle in November but in the closing week or two of the year stiffened again, and the new year opens with prospects of heavy buying by consumers and at full if not advanced prices.

FERRO-ALLOYS

Sales of ferromanganese in December were heavy, estimated about 15,000 tons in the local market for prompt and early shipment and for delivery over the first quarter and first half of next year. Probably 75% of the business was of British alloys. Practically all of the sales of foreign ferromanganese were made at $100 Atlantic seaboard, duty paid. Some sales of domestic ferromanganese, however, were made at $100 at the furnace. On Jan. 5, 1923 the price of British ferromanganese was advanced $2.50 per ton to $102.50 c.i.f. Atlantic ports duty paid.

Output of domestic ferromanganese in 1922 is estimated 150,000 tons against a production in 1921 of 103,755 tons. Thus there was a gain in 1922 of about 44% but with the exception of 1921, the output of ferromanganese from domestic ores was the smallest since 1914. Imports in 1922 were also heavy being estimated at 90,000 tons against 9,077 tons in 1921; in fact, importations in 1922 were the largest since 1913, imports being increased heavily during the period following the coal miners' strike.

Adding imports to domestic consumption and subtracting exports would indicate domestic consumption of ferromanganese in 1922 to be 238,500 tons, being double that of 1921 but 113,000 tons smaller than in 1920.

In the first half of December some additional large sales of spiegeleisen were made by domestic producers at lower prices for shipment over the first half and whole of 1923. These sales were made in lots ranging from 1,000 to 3,000 and 4,000 tons each at prices ranging from $33.00 to $34.00 for 19% to 21% and $32.00 to $33.00 for 16% to 19%. In smaller lots sales were made $1.00 to $2.00 a ton higher and a few carload lots of British spiegeleisen were also made at the higher prices. As the year closed there was less activity, most of the large contracts for 1923 having been closed. Production of domestic spiegeleisen for 1922 is estimated at 67,000 tons against 56,423 tons in 1921 and 111,449 tons in 1920.

At the beginning of 1922 domestic ferromanganese sold at $59.00 to $63.00 per gross ton for 76% to 80% alloy, delivered to consumers. There was a gradual hardening of the market for some months and a sharp advance for a time prior to the levying of the new tariff of 1.87½c per pound equivalent to $33.60 per ton for 80% alloy. A few sales of domestic ferromanganese were made at $102 at the furnace but the market subsequently settled at $100. English alloy which sold at $58.00 per gross ton c.i.f. Atlantic ports advanced to $105 delivered after the new duty became effective, but later settled to $100 duty paid c.i.f. Atlantic ports.

Spiegeleisen, 19% to 21% alloy, sold somewhat under $30.00 per gross ton early in the year and rose to $38.00 to $39.00 furnace during the period of fuel scarcity following the coal miners' strike. The 17% to 19% alloy sold $1.00 to $2.00 per ton less. The heavy sales made by the large domestic producer at relatively low prices for delivery next year, prevented any large importations of British spiegeleisen although there were a few importations during the last few months and sales were made in December at $35.00 to $36.00 at Atlantic and Gulf ports, duty paid, for 20% alloy.

SCRAP IRON AND STEEL PRICES

Averaged from daily quotations.

	Melt'g Steel	Bdld. Sheet	No. 1. R.R. Wrot.	No. 1. Cast.	No. 1. Steel	Hy. Melt'g
	— Pittsburgh —				Phila.	Chi.
Jan. '21	15.66	11.50	16.50	20.75	15.00	15.50
Feb.	15.00	11.00	16.50	22.25	14.65	15.40
Mar.	14.42	10.50	16.00	20.75	12.85	12.75
April	13.00	10.00	14.00	19.00	11.15	11.25
May	13.50	10.50	13.50	18.50	11.12	11.70
June	12.75	9.00	12.50	16.75	10.75	11.00
July	12.00	7.90	11.40	15.50	10.30	10.25
Aug.	12.75	8.70	11.45	15.90	10.67	11.00
Sept.	14.60	9.50	11.50	16.83	11.10	11.40
Oct.	14.30	10.50	11.50	17.10	11.35	12.30
Nov.	14.60	10.60	11.65	16.75	11.85	12.50
Dec.	14.50	10.25	11.75	16.75	11.25	11.55
Year	13.92	10.00	13.19	18.07	11.84	12.22
Jan., '22	14.67	10.60	11.75	16.60	11.45	11.70
Feb.	14.25	10.75	11.75	16.25	11.50	11.75
Mar.	15.35	12.00	12.25	16.25	11.75	12.50
April	16.60	13.60	13.10	17.25	14.25	13.80
May	17.25	14.25	13.75	18.25	14.70	14.95
June	17.25	14.25	13.75	18.60	14.50	14.80
July	16.85	14.00	13.75	19.25	14.40	15.40
Aug.	17.45	14.95	15.00	19.35	14.75	16.00
Sept.	20.00	16.25	18.50	21.75	17.00	17.50
Oct.	21.00	17.75	19.50	24.00	18.35	18.65
Nov.	20.50	17.75	19.75	23.20	16.65	17.60
Dec.	20.40	17.75	19.75	22.75	16.70	17.50
Year	17.63	14.49	15.22	19.46	14.67	15.18

Electro ferro-silicon 50% was strong and active at the close of the year in marked contrast to business early in the year when 50% alloy sold at $54.00 to $57.00 per ton freight allowed to destination. In the last few months of the year, however, some large contracts were negotiated for shipment over the first half and whole of 1923, the result of which was an advance to $82.50 to $85.00 per ton for large tonnages and $87.50 per ton for smaller tonnages.

The output of domestic ferro-silicon is not available but it is estimated that American consumption of 50% alloy ranges from 65,000 to 80,000 tons a year. In 1922 home consumption was about 65,000 to 70,000 tons. It is estimated that about 80,000 tons of Bessemer ferro-silicon were produced in 1922. Manufacturers of 50% ferro-silicon were handicapped somewhat in the early part of the year by unfavorable power contracts. The duty on foreign ferro-silicon now ranges from 2.00c per pound on silicon alloy containing 8% to 60% silicon up to 8.00c for the higher grades of silicon; 75% silicon sold at $115 to $120 a ton during the year.

Bessemer ferro-silicon, 10% advanced from $38.50 early in the year to $50.50 per ton in September, after which prices reacted. At the close of the year Bessemer ferro-silicon, f.o.b. Jackson and New Straitsville, Ohio, sold at $44.50 for 10%, other grades in proportion. Silvery iron, 6%, was held at $33.00 to $39.50 for 10% and $47.00 for 13%.

MANGANESE IN 1922

Manganese ore containing 35% or more of manganese shipped from domestic mines in 1922, according to figures compiled by the United States Geological Survey from reports of producers of managanese, amounted to about 13,500 gross tons, valued at $457,000. The ore of this grade shipped in 1921 amounted to 13,531 gross tons, valued at $495,097. The figures for 1922 represent the actual production for 11 months plus an estimate of the production in December. More than 10,000 tons of this ore was mined in Montana.

Effect of the New Tariff.

The new tariff act, which became effective September 21, 1922, provides for a duty of $8.00 a ton on ore containing 40% of manganese, $9.00 a ton on ore containing 45% of manganese, $10.00 a ton on ore containing 50% of manganese, and so on. Manganese should therefore bring an average price on the eastern seaboard amounting to the present average price of foreign ore plus about $9.00 a ton. The new tariff has not yet greatly affected the domestic manganese market, for even under its provisions not many domestic mines can be operated at a good profit: but the owners of mines that have heretofore been worked profitably have shown a renewal of interest in the industry, and some of the mines that are already developed and that yield ore of high grade will probably be reopened.

Shipments by Grades.

About 352,000 gross tons of ore containing 10 to 35% of manganese, valued at about $1,232,000, was mined in 1922, as compared with 8,439 gross tons, valued at $42,755, in 1921. About 308,000 tons of the ore of this grade shipped in 1922 was mined in Minnesota.

About 251,000 gross tons of ore containing 5 to 10% of manganese, valued at about $630,000, was shipped from domestic mines in 1922, as compared with 62,670 gross tons, valued at $147,576, in 1921. About 248,000 tons of the ore of this grade shipped in 1922 was mined in Minnesota.

Up to September 21st manganese ore amounting to 266,969 gross tons, valued at $2,324,989, had been imported into the United States in 922, most of it from Brazil.

COAL

The beginning of January found decided changes in the bituminous coal markets as compared with conditions existing during the early part of the previous month. During the month of December, car shortages at the mines became more acute, and with diminished production of the high grade coals, particularly in Pennsylvania, prices began an upward climb which, during the first week in January was unchecked, although it was thought that they had nearly reached their limit when they got beyond $6.00 net ton at the mines.

While the large buyers as a rule have been well supplied with coal for their immediate needs, and are thought to be in a good position in regard to their coal supplies for some time to come, many of them have contracted and are

depending upon these obligations to take care of them. Therefore, in the face of the severe car shortage, contract shipments are necessarily shut down, and there is but little chance for the spot buyer, particularly when he is seeking the high grade coals. Most of the railroads supplying mines in Pennsylvania which produce coals such as Pool 1 and 9, are in a bad way for cars, and for some weeks these grades have been not only scarce, but at times unobtainable. While the consumers as a rule are not actually clamoring for coal, the scarcity of the good grades has made a fairly active market, and decreasing tonnages have caused the advancing prices.

Owing to the triple holidays over both Christmas and New Year, railroads were enabled to clear up loaded cars at the mines in fairly good shape, but were able to do little toward the distribution of empties, and as a result, many mines not only were forced to curtail production, but some shut down completely. The lack of adequate motive power as well as the scarcity of empties is the chief retarding factor in West Virginia, where the demand is heavy for the domestic sizes as well as for industrial shipment. In Indiana and Illinois many are becoming seriously worried because of the deplorable situation on the railroads, and coal is not being produced at a greater rate than just enough to meet current needs. This situation, however, affects chiefly the domestic branches of the trade. Because of milder weather around the latter part of Decembr, the situation in the northwest was described as much easier, and rail movement was materially speeded up. About 2,750,000 tons of bituminous coal were on hand at the lake docks at the end of December, which, it was expected would elminate any shortage in the northwest for the present.

In the matter of spot prices, Pennsylvania coals have shown the most drastic advances within the last month, some of the better grades registering increases of from $1.00 to $1.50 per net ton at the mines. For instance, Pool 1 (Pennsylvania) coal was quoted early in December at $5.00 to $5.25 per ton, whereas, in the first few days of this month, the same coal was quoted at $6.50 to $7.00 net ton f.o.b. mines. Current quotations on Pool 9 are from $5.75 to $6.25 as compared with $4.00 to $4.50 net ton a month ago. Pool 10 coal is quoted at $5.25 to $6.00 net ton, and Pool 11 at $4.50 and up.

While consumers are comparatively quiet, buying is taking place nevertheless as is evidenced by the purchase of large quantities of British coal just prior to the close of the year for delivery during January, February, and March. It has been generally estimated that at least 200,000 tons of British coal were bought during the last week or ten days of December, and that together with the fixtures consummated prior to that time, the arrivals here of coal from the other side, will total at least 500,000 tons in the first three months of 1923. Various classes of consumers are buying this coal, which they evidently find most desirable, and which, at the present high scales of prices for our own coals, are underselling the latter at average North Atlantic ports.

For instance, Admiralty large, one of the best grades of British coals, can be delivered here at from $8.75 to $9.00 per ton. A mixture of half large and half small is quoted at $7.75 to $8, c.i.f., and two-thirds large and one-third small at $8.00 to $8.25 c.i.f. These may be compared with the American coals which are selling at $8.75 and $9.00 at Hampton Roads for Pool 1 (New River, Pocahontas), and $10.00 to $10.25 for Pool 1 Pennsylvania at the New York piers. At New York also, Pool 9 is quoted at $9.25 to $9.75, and Pool 10 at $8.50 to $9.25. To the Hampton Roads coals must be added a coastwise vessel freight of 85c to 90c for delivery at North Atlantic ports, and 25c to 30c must be added to the New York pier coals for alongside delivery in New York Harbor.

The weekly production rate of bituminous coal during December was as follows:

Week ended		Net Tons
Dec.	2	10,387,000
"	9	11,495,000
"	16	10,666,000
"	23	10,031,000*
"	30	10,600,000*

* Estimated.

Production in the last week of the month was reduced by the holidays.

EXPORTS OF IRON AND STEEL PRODUCTS FROM THE U. S.

Value of tonnage and non-tonnage.

	*1922.	1921.	1920.
Jan.	$15,141,083	$137,803,395	$70,226,441
Feb.	12,950,603	101,205,061	71,893,929
Mar.	18,836,718	67,870,739	94,784,845
April	17,559,081	49,609,605	87,496,206
May	17,749,475	41,365,886	99,393,536
June	18,649,816	39,975,035	88,787,349
July	14,611,858	27,639,787	92,147,844
Aug.	13,963,749	27,647,816	89,065,536
Sept.	14,380,851	26,740,228	87,556,292
Oct.	14,626,411	29,706,437	103,546,679
Nov.	.....	28,543,142	104,827,626
Dec.	.....	29,502,448	123,178,579

* Excluding machinery.

Yearly totals.

1921..	$607,427,146	1915..	$390,897,123
1920..	1,112,904,802	1914..	199,861,684
1919..	968,575,142	1913..	293,934,160
1918..	1,035,291,736	1912..	289,128,420
1917..	1,240,984,979	1911..	249,656,411
1916..	871,372,322	1910..	201,271,903

Tonnage Lines.

(Gross tons.)

	1922.	1921.	1920.	1919.
Jan.	160,920	547,394	333,601	360,456
Feb.	133,975	393,328	308,185	234,793
Mar.	208,843	230,635	417,216	344,500
April	198,830	162,592	395,120	408,204
May	230,062	104,072	420,359	447,050
June	212,295	119,081	402,707	544,580
July	157,169	86,523	458,866	287,823
Aug.	145,640	75,827	431,484	396,679
Sept.	129,475	95,169	409,200	364,504
Oct.	132,924	106,582	452,015	302,456
Nov.	.....	122,290	434,297	295,045
Dec.	.....	134,415	498,765	254,676

Yearly totals.

1921	2,213,042	1915	3,532,606
1920	4,961,851	1914	1,549,554
1919	4,239,837	1913	2,745,535
1918	5,338,037	1912	2,947,596
1917	6,441,760	1911	2,187,724
1916	6,105,881	1910	1,540,895

IMPORTS OF IRON ORE INTO THE UNITED STATES.

	1922	1921.	1920.	1919.
Jan.	19,433	82,424	88,881	33,251
Feb.	10,016	47,466	100,105	28,039
Mar.	12,013	26,483	108,643	54,992
April	2,710	35,645	88,670	24,195
May	29,707	58,704	103,325	28,164
June	133,817	8,424	104,364	30,605
July	166,711	7,040	28,846	23,347
Aug.	160,173	24,570	174,169	32,117
Sept.	127,838	4,954	73,675	48,478
Oct.	.....	5,838	141,026	30,386
Nov.	.....	12,065	139,854	89,933
Dec.	.....	2,155	117,898	52,954

Yearly totals.

1921	315,768	1915	1,341,281
1920	1,273,456	1914	1,350,588
1919	476,461	1913	2,594,770
1918	787,468	1912	2,104,576
1917	971,663	1911	1,811,732
1916	1,325,736		

BITUMINOUS COAL PRODUCTION.

(Net tons of 2,000 lbs.)

	1922.	1921.	1920.
Jan. ..	37,600,000	40.270,000	48,689,000
Feb. ..	40,950,000	30,851,000	40,181,000
March..	50,193,000	30,392,000	46,832,000
April...	18,900,000	27,553,000	37,939,000
May ...	20,275,000	33,330,000	38,993,000
June ..	22,250,000	33,896,000	45,114,000
July ...	16,900,000	30,385,000	45,009,000
Aug. ..	23,250,000	34,538,000	48,910,000
Sept. ..	41,000,000	35,127,000	49,172,000
Oct. ...	44,000,000	43,733,000	52,144,000
Nov. ...	45,300,000	36,020,000	51,457,000
Dec. ...	44,500,000	30,975,000	52,123,000
Total	406,000,000	407,000,000	556,516,000

CONNELLSVILLE COKE.

Spot or prompt, per net ton f.o.b. ovens.

	— Furnace —			— Foundry —		
	1922.	1921.	1920.	1922.	1921.	1920.
Jan.	2.85	5.10	6.00	4.00	6.75	7.00
Feb.	3.10	4.80	6.00	4.15	6.15	7.00
Mar.	3.38	4.43	6.00	4.50	5.63	7.00
Apr.	4.44	3.60	11.10	5.21	5.15	13.10
May	6.50	3.40	14.50	6.75	5.10	14.00
June	7.50	3.12	15.60	7.85	4.67	16.00
July	11.35	2.95	18.00	11.70	4.20	19.00
Aug.	13.35	2.95	17.78	15.00	4.20	19.15
Sept.	11.50	3.26	16.85	13.25	4.34	18.25
Oct.	9.70	3.35	14.95	11.90	4.40	17.25
Nov.	7.35	3.15	8.54	8.70	4.17	10.60
Dec.	7.75	2.90	6.25	8.15	4.00	7.75
Av.	7.40	3.58	11.80	8.43	4.90	13.01

BRITISH IRON AND STEEL OUTPUT.

Pig Iron—(Gross tons).

	1922.	1921.	1920.
Jan.	288,000	642,100	665,000
Feb.	300,100	463,600	645,000
March	389,800	386,000	699,000
April	394,300	60,300	671,000
May	407,900	13,600	738,000
June	369,200	800	726,000
July	399,100	10,200	750,600
Aug.	411,700	94,200	752,400
Sept.	430,300	158,300	741,000
Oct.	481,500	235,500	533,200
Nov.	493,900	271,800	403,200
Dec.	.....	275,000	682,500
Total ...	4,365,800	2,611,400	8,007,900

Steel Ingots and Castings.

	1922.	1921.	1920.
Jan.	327,500	493,400	754,000
Feb.	418,800	483,500	798,000
March	549,400	359,100	840,000
April	404,200	70,600	794,000
May	462,300	5,700	846,000
June	400,200	2,700	845,000
July	473,100	117,200	789,900
Aug.	520,800	434,100	709,200
Sept.	555,900	429,300	884,700
Oct.	565,200	405,400	544,300
Nov.	600,800	442,800	505,100
Dec.	.....	381,000	746,600
Total ...	5,258,200	3,624,800	9,056,800

COPPER

According to the U. S. Geological Survey the output of United States smelters in 1922 was 981,000,000 pounds, which is an increase of 475,000,000 pounds or 90% over the output in 1921 but the refined output from domestic material was only 897,000,000 pounds, being an increase of 288,000,000 pounds or 47% over the production in 1921. Refined production from foreign material was 501,000,000 pounds which was an increase of 90,000,000 pounds or 22% over 1921. The total production from refined and domestic material combined was 1,398,000,000 pounds, being an increase of 378,000,000 pounds or 37% as compared with the previous year.

It is evident that refineries failed to keep pace with smelters last year and the result was an increase in blister stocks, including material in process of refining. Had there been a gain in the refinery operations the same as at smelters in the United States and South America, the decrease in refined stocks would have been considerably smaller than 182,000,000 pounds.

Combined Stocks.

The combined refined and blister stocks at the end of 1922 were 629,000,000 pounds whereas at the end of 1921 the combined refined and blister stocks were 742,000,000 pounds so that the net decrease in the last year was only 113,000,000 pounds. It had been given out in the trade about the middle of last year that blister stocks had been greatly reduced, upon which it was assumed that refined output had been increased to a much greater extent than proves to have been the case.

The total foreign and domestic consumption of primary copper in 1922 is indicated to have been 1,580,000,000 pounds whereas total production of refined copper was 1,398,000,000 pounds, making a decrease of 182,000,000 pounds in surplus refined stocks. Total consumption by domestic and foreign consumers was at the rate of 131,000,000 pounds a month including 73,500,000 pounds monthly by domestic consumers and 58,200,000 pounds a month by foreign consumers. Exports reported by the Government include probably at least 70,000,000 pounds of finished products already counted in the deliveries to domestic consumers. Even counting the full exports, however, the gain was only 15% in 1922 over the preceding year.

It is quite evident that the copper industry is not in as strong position as has been indicated by trade reports for months.

Sales In 1922.

Sales of copper in 1922 amounted to approximately 1,645,000,000 pounds. If these estimates are correct sales exceeded refined output last year by approximately 245,000,000 pounds. This is equivalent to a little less than two months requirements of domestic and foreign consumers at the average rate of consumption in 1922.

Exports.

Exports in 1922 were approximately 700,000,000 pounds of which 185,000,000 pounds were exported in the first quarter and 190,000,000 pounds in the second quarter, making a total of 375,000,000 pounds in the first half of the year. In the third and fourth quarters there was a decrease, specially marked in the third quarter. The third quarter foreign outgo was 180,000,000 pounds and in the last quarter 145,000,000 pounds, making the exports in the second half 325,000,000

COPPER PRICES IN DECEMBER

Day	New York — Lake.	New York — Electro.	London — Cast.	London — Stand. £ s. d.	London — Electro. £ s. d.
1	14.06¼	13.75	13.40	62 5 0	69 15 0
4	14.06¼	13.75	13.40	62 5 0	69 7 6
5	14.06¼	13.75	13.40	62 5 0	69 7 6
6	14.06¼	13.75	13.40	62 7 6	69 10 0
7	14.06¼	13.87½	13.40	62 10 0	69 10 0
8	14.06¼	13.92½	13.50	62 10 0	69 10 0
11	14.06¼	13.92½	13.50	62 12 6	69 10 0
12	14.06¼	13.92½	13.50	62 10 0	69 0 0
13	14.12½	13.95	13.50	62 5 0	68 10 0
14	14.25	14.06¼	13.60	62 15 0	69 0 0
15	14.37½	14.18¾	13.72½	62 10 0	69 10 0
18	14.62½	14.56¼	14.00	64 2 6	70 0 0
19	14.87½	14.62½	14.12½	64 0 0	70 10 0
20	14.87½	14.62½	14.25	64 5 0	71 5 0
21	14.87½	14.62½	14.25	64 5 0	71 12 6
22	14.87½	14.62½	14.25	64 5 0	71 12 6
25	Christmas Holiday				
26	14.87½	14.62½	14.25	Holiday	
27	15.00	14.62½	14.25	64 12 6	71 15 0
28	15.00	14.62½	14.25	64 10 0	71 10 0
29	14.87½	14.62½	14.25	64 10 0	71 15 0
High	15.12½	14.62½	14.25	64 12 6	71 15 0
Low	14.00	13.75	13.40	62 5 0	68 10 0
Aver.	14.46	14.22	13.81	63 5 6	70 1 9

pounds and the total for the year 700,000,000 pounds as above.

Smelter Output.

According to trade estimates, output of United States smelters in the first quarter of 1922 amounted to 150,000,000 pounds, in the second quarter to 240,000,000, making the total for the first half 390,000,000 pounds. In the third quarter output increased to 290,000,000 pounds and in the fourth quarter 303,000,000 pounds. In the second half therefore, output increased to 593,000,000 pounds, making a total for the year of 983,000,000 pounds.

Imports.

Imports in the first quarter of the year amounted to 68,300,000 pounds, in the second quarter to 102,800,000 pounds, making the total for the first half 171,100,000 pounds. In the third quarter imports increased to 136,000,000 pounds and in the fourth quarter to 170,000,000 pounds, making a total for the second half of 306,000,000 pounds and a total for the year of 477,100,000 pounds. Of the total importations it is estimated that 102,000,000 pounds were refined, and 375,000,000 pounds were blister copper.

Of the 981,000,000 pounds of copper produced by domestic smelters, 897,000,000 pounds, according to the Government, were refined, so that blister stocks of domestic origin were increased 82,000,000 pounds, but there was evidently a small decrease in blister stocks of foreign origin.

The figures relating to imports above given are derived from Government monthly reports for the first nine months, the last three months being estimated, but if the preliminary report of the Government covering refined copper produced from foreign material is correct, imports were somewhat larger than trade estimates.

Stocks.

Stocks of refined copper in the United States Jan. 1, 1918-1923:

	Pounds
Jan. 1, 1918	114,000,000
Jan. 1, 1919	180,000,000
Jan. 1, 1920	631,000,000
Jan. 1, 1921	659,000,000
Jan. 1, 1922	459,000,000
Jan. 1, 1923	277,000,000
Decrease in 1922	182,000,000

Dallas Brass & Copper Co.

Manufacturers of

Brass and Copper Products

Prompt Mill Deliveries

Prompt Shipments From Warehouses

CLEVELAND CHICAGO DETROIT

Consumption.

New refined copper withdrawn from total year's supply on domestic account in the United States, 1921-1922.

	1921	1922
Total supply of new copper	1,020,027,006	1,398,000,000
Stocks at beginning of year	659,000,000	459,000,000
Tot. avail. sup.	1,679,027,096	1,857,000,000
Copper export.	609,038,352	698,000,000
Stocks at end of year ...	459,000,000	277,000,000
Withdrawn	1,033,038,352	975,000,000
Domestic consumption	610,988,744	882,000,000

Comparisons.

The production of smelters and refineries since 1912 has been as follows:

	Smelter.	Refinery*
1922	981,000,000	1,398,000,000
1921	505,587,000	1,020,027,096
1920	1,209,061,000	1,634,908,000
1919	1,310,541,000	1,805,306,000
1918	1,908,533,000	2,432,385,000
1917	1,886,120,000	2,428,546,000
1916	1,927,850,000	2,259,387,000
1915	1,388,009,000	1,634,204,000
1914	1,150,137,000	1,533,781,000
1913	1,224,484,000	1,615,067,000

* Including imports of refined copper.

Exports and deliveries into domestic consumption, and refined stocks.

	Exports	Domestic consumption
1921	609,038,352	610,988,744
1921	609,038,352	610,988,744
1920	553,070,000	1,053,838,000
1919	439,835,000	914,471,000
1918	704,715,000	1,661,669,000
1917	1,047,771,000	1,394,829,000
1916	734,879,000	1,478,881,000
1915	588,797,000	1,136,618,000
1914	748,902,000	701,624,000
1913	817,911,000	812,268,000

Prices

The price fluctuations in Electrolytic copper during 1922 and the nine preceding years were as follows:

	High	Low	Average
1922	14.62½	12.60	13.55
1921	13.75	11.50	12.65
1920	19.50	12.75	17.50
1919	23.50	14.75	18.90½
1918	26.00	23.00	24.68
1917	37.00	23.50	29.19
1916	36.00	23.00	28.46
1915	23.00	12.80	17.47
1914	14.87½	11.10	13.31½
1913	17.60	14.12½	15.52

LAKE COPPER PRICES

Average prices in New York.

	1922.	1921.	1920.	1919.	1918.
Jan. ...	13.76	13.53	19.76	21.75	23.50
Feb. ...	13.24	13.33	19.09	17.87	23.50
Mar. ...	13.03	12.58	18.87	15.48	23.50
April ..	12.91	12.89	19.05	15.73	23.50
May ...	13.42	13.12	18.85	16.30	23.50
June ..	13.97	13.04	18.55	17.93	23.50
July ...	14.07	12.75	18.83	22.08	25.89
Aug. ...	14.09	12.11	18.72	22.96	26.00
Sept. ..	14.19	12.23	18.53	22.48	26.00
Oct. ...	14.16	13.01	16.87	21.94	26.00
Nov. ...	14.07	13.30	14.97	20.49	26.00
Dec. ...	14.46	13.80	14.01	18.88	25.29
Average	13.78	12.98	18.01	19.49	24.68

Annual Averages.

1917	29.18	1912	16.58
1916	28.17	1911	12.71
1915	17.64	1910	13.12
1914	13.61	1909	13.39
1913	15.70	1908	13.50

ELECTROLYTIC COPPER PRICES

Average prices in New York.

	1922.	1921.	1920.	1919.	1918.
Jan. ...	13.60	12.85	19.02	20.00	23.50
Feb. ..	12.97	12.79	18.61	16.91	23.50
Mar. ...	12.84	12.23	18.36	15.01	23.50
April ..	12.71	12.54	18.54	15.40	23.50
May ...	13.29	12.83	18.28	16.01	23.50
June ..	13.71	12.76	17.97	17.65	23.50
July ...	13.90	12.35	18.61	21.71	25.89
Aug. ...	13.96	11.76	18.44	22.22	26.00
Sept. ..	13.88	12.10	18.04	21.95	26.00
Oct. ...	13.80	12.75	16.30	21.50	26.00
Nov. ...	13.79	13.16	14.39	19.96	26.00
Dec. ...	14.22	13.67	13.48	18.48	25.29
Average	13.55	12.65	17.50	18.90	24.68

Annual Averages.

1917	29.19	1912	16.48
1916	28.46	1911	12.55
1915	17.47	1910	12.88
1914	13.31	1909	13.11
1913	15.52	1908	13.39

CASTING COPPER PRICES

Average prices in New York.

	1922.	1921.	1920.	1919.	1918.
Jan. ...	12.96	12.61	18.81	18.48	23.50
Feb. ..	12.61	12.45	18.21	16.45	23.50
Mar. ...	12.54	11.83	18.11	14.82	23.50
April ..	12.46	11.82	18.40	15.06	23.50
May ...	12.84	12.24	18.16	15.49	23.50
June ..	13.33	12.08	17.65	17.17	23.50
July ...	13.34	11.68	18.12	21.10	25.89
Aug. ...	13.43	11.43	18.00	21.71	26.00
Sept. ..	13.39½	11.75	17.76	21.28	26.00
Oct. ...	13.39	12.43	16.01	20.66	26.00
Nov. ...	13.40	12.53	14.12	19.37	26.00
Dec. ...	13.81	12.97	13.12	18.21	25.28
Average	13.13	12.15	17.21	18.32	24.68

Annual Averages.

1917	27.64	1913	15.33
1916	26.51	1912	16.29
1915	16.76	1911	12.42
1914	13.18	1910	12.81

COPPER AND BRASS PRODUCTS

December proved to be a most satisfactory month for manufacturers of wrought copper and brass. The greatest activity came in the last ten days of the month when heavy orders for copper wire were placed by power companies for shipment over the first and second quarters of 1923. Buying was stimulated by the advance in prices of unwrought copper and the prospect of a further rise in prices of finished products.

Copper wire and copper rods were advanced .87½c to 1.00c a pound during the month while prices of finished rolled and drawn copper and brass were revised irregularly, the advances ranging from .25c to .75c a pound. With a few exceptions the advance in prices was general.. Competition for business was less keen as prices advanced. At the same time, while orders were taken reluctantly on some specialties, there was more or less competition for business.

Practically all buyers during the period of greatest activity covered requirements for the first quarter of next year but buying was less general for April, May and June shipment although some large contracts were placed for later shipment. It is surprising how many of the large electrical equipment manufacturers and utility companies were caught napping, having failed to cover the major portion of their requirements

EXPORTS OF COPPER.

As compiled by the New York Metal Exchange from Custom House returns, in tons of 2,240 lbs.

	1922.	1921.	1920.	1919.
Jan.	24,679	24,068	21,804	35,343
Feb.	22,910	27,748	25,700	17,937
Mar.	35,851	17,151	39,236	12,036
April	28,367	18,397	28,644	10,272
May	27,894	15,736	37,090	10,489
June	29,191	22,339	25,581	13,183
July	28,584	22,774	20,430	21,525
Aug.	26,889	19,110	20,121	23,530
Sept.	25,144	28,343	10,751	29,093
Oct.	22,681	22,934	10,073	21,793
Nov.	.....	32,407	16,954	14,470
Dec.	.....	27,394	18,304	17,498
Total ..	270,258	278,401	274,688	227,169

Annual Totals.

1918	328,844	1913	382,810
1917	493,256	1912	327,965
1916	327,310	1911	336,801
1915	270,704	1910	301,935
1914	360,229	1909	301,657

BRASS AND COPPER PRODUCTS.

During December brass and copper products prices were quite active. Advances in base prices were made on the 14th, 21st and 26th, the last list affecting nickel silver quotations also.

The prices contained in the last two lists issued are given below:

COPPER PRODUCTS.

	Dec. 21, 1922	Dec. 26, 1922
Sheet copper	22	22¼
Copper bottoms	30½	30¾
Copper in rolls	20½	20¾
Brush copper	23	23¼
Sawed copper	22¾	23
Drawn copper shapes ..	20½	20¾
Commutator copper ...	21¾	22

BRASS PRODUCTS

Sheet Metal

	Dec. 14, 1922	Dec. 26, 1922
High brass	18¾	19
Low brass	20¼	20⅝
Rich low brass	20¾	21⅛
Commercial bronze	21¾	22¼
Common gilding	21¾	22¼
Best spring drawing and spinning brass	19¾	20

Wire

High brass	19¼	19½
Low brass	20¾	21⅛
Commercial bronze and gilding	22¼	22¾
Best spring and brazing brass	20¼	20½

Rods

	Sept. 27	Dec. 26
High brass (free turning)	17	17¼
Low brass	21	21⅜
Commercial bronze	22½	23

Brazed Tubes

	Dec. 14	Dec. 26
Brass	25⅝	26
Copper and commercial bronze	30½	31
Open seam brass	25⅝	26
Open seam copper and commercial bronze ..	30½	31

Seamless Tubes

	Sept. 27	Dec. 26
High brass	23	23½
Low brass	25	25½
Commercial bronze	26	26½
Copper	24¾	25¼

Nickel Silver

	Sept. 27	Dec. 26
10% grade A sheet metal	26¾	27¼
15% " " " "	28½	29
16% " " " "	29¾	29¼
18% " " " "	29¼	30
21% " " " "	32¼	33
25% " " " "	40¼	41
5% wire and rod.....	26¼	26¾
8% " " "	27¾	28¼
10% " " "	29¾	30¼
12% " " "	31½	32
15% " " "	33¾	34¼
16% " " "	34¾	35¼
18% " " "	36½	37

before the feverish advance took place.

Some very satisfactory orders for copper sheets were placed during the third week of the month, mainly for future deliveries, that is for February, March and April. Buying for prompt shipment was reduced as the month drew to a close. According to the Copper and Brass Research Association, 150,000,000 pounds of copper were used in the building industry in 1922, being an increase of nearly 100,0000,000 pounds over the consumption in 1921, an increase of 96,000,000 pounds as compared with 1920 and 73,000,000 pounds as compared with 1919. In the two latter years the amount of copper used in building was about 5% of the total copper consumption in the United States.

Electrical equipment manufacturers who consumed 250,000,000 pounds of copper in 1921, largely copper wire, are estimated to have consumed 380,000,000 pounds in 1922. Telegraph and telephone companies in 1922 took about 145,000,000 pounds against 96,000,000 pounds in 1921. In addition to the wire consumed by manufacturers of electrical equipment, telephones and telegraphs, about 110,000,000 pounds wire went to other consumers. Automobile manufacturers, who in 1921 consumed 53,000,000 pounds of unwrought copper are estimated to have consumed 80,000,000 pounds in 1922. The Ford Motor Company made some heavy purchases of wire in December and all of the inquiries originating at this source were not satisfied. The copper trade was much interested in the rumor that Mr. Ford contemplated the electrification of the Detroit, Toledo & Ironton Railroad which is a Ford property.

Shipbuilders did not increase consumption of copper apparently to the extent that other industries did in 1922 as compared to the previous year. It seems doubtful that shipbuilding required more than 50,000,000 pounds of copper in 1922 as compared with 42,000,000 pounds in 1921. It is estimated that about 70,000,000 pounds of wrought copper and brass were exported in 1922.

Roofers placed some liberal orders for copper sheets in the second half of December for shipment over the first quarter of 1923. The prospect is that as much copper roofing will be required in 1923 as in 1922, or possibly more. Large orders were also placed for brass sheets, rods and tubing in the last ten days of the month. Seamless tubing, however, was rather quiet for both nearby and future shipment. Buying of bronze products was stimulated while prices were advancing and some satisfactory export orders for bronze screens were placed in the last ten days of the month.

High brass rods, seamless tubes and copper bottoms, while improved in demand, were relatively quiet. There was a quickening in the demand also for copper and brass hardware. Spinners and stampers bought brass sheets more or less feverishly and metal workers increased purchases of copper sheets.

Attention was called about the middle of the month to the receipt of large export orders for locomotives by the General Electric Company works at Erie, Pa. Domestic orders for 12 locomotives were also placed in December with several more under negotiation for western railroads. Among foreign orders for electric locomotives those from Spain, France, Chile, Japan and Mexico were notable. The General Electric Company is completing the building of electric locomotives for the Mexican Railway, for the Spanish Northern Railway and for the Paris-Orleans Railway. The Bethlehem Chile Iron Mining Company recently placed an order for three 60-ton electric switching locomotives for service in Chile. The Imperial Japanese Government has placed initial orders for electric locomotives to be tested on the Tokyo Railway. Electrification of railroads in Italy as well as for power plants will lead to large purchases of copper wire and electrical equipment.

Electrical equipment manufacturers in this country have recently given employment to many skilled artisans, paying relatively higher wages than such mechanics are receiving in other industries.

COPPER, BRASS, BRONZE AND ALLIED PRODUCTS IN 1921.

The Department of Commerce announces that reports made to the Bureau of the Census show a considerable decrease in the activities of establishments engaged primarily in the manufacture of brass, bronze, copper, and allied metal products during the year 1921 as compared with 1919. The total value of products reported for 1921 amounted to $214,612,000, compared with $482,313,000 for 1919, a decrease of 55.5%. In addition, products of this class to the value of $42,790,000 were reported in 1919 by establishments classified in other industries; corres-

sponding figures for 1921 are not available at this time.

Of the 912 establishments reporting products valued at $5,000 and more in 1921, 158 were located in New York, 108 in Pennsylvania; 81 in Illinois; 79 in Ohio; 71 in Michigan; 64 in Massachusetts; 62 in New Jersey; 59 in Connecticut; 46 in California; 28 in Wisconsin; 25 in Indiana; 18 in Missouri; 17 in Maryland; 12 in Rhode Island; 11 in Washington; nine in Minnesota; eight in Colorado; six each in Kentucky and Texas; five each in Iowa and New Hampshire; four each in Delaware and Louisiana; three each in Alabama, Oregon and West Virginia; two each in the District of Columbia, Kansas, Maine, Nebraska, Vermont, and Virginia; and one each in Florida, Georgia, Montana, Tennessee and Utah. Connecticut, the leading state in the industry in 1921, reported 30.7% of the total value of products in that year. The difference in the number of establishments at the two censuses is explained by the fact that some of those reporting in 1919 were out of business or idle in 1921, while others had so changed the character of their products as to require classification in some other industry.

The figures for 1921 are preliminary and subject to such change and correction as may be found necessary from a further examination of the original reports.

The statistics for 1921 and 1919 are summarized in the following statement:

	1921*	1919*	Per cent. decrease
Number of establishments	912	995	...
Persons engaged	46,718	86,106	45.7
Proprietors and firm members	576	751	23.3
Salaried employees	6,310	10,304	38.8
Wage earners (average number)	39,832	75,051	46.9
Salaries and wages	$62,546,000	$117,749,000	46.9
Salaries	16,284,000	23,617,000	31.0
Wages	46,262,000	94,132,000	50.9
Paid for contract work	318,000	420,000	24.3
Cost of materials	130,630,000	304,824,000	57.1
Value of products	214,612,000	482,313,000	55.5
Value added by manufacture†	83,982,000	177,489,000	52.7

* Statistics for establishments with products valued at less than $5,000 are not included in the figures for 1921; 118 establishments of this class reported 70 wage earners and products aggregating $362,460 in value.

For 1919, however, data for 97 establishments of this class, reporting 53 wage earners and products valued at $276,470 are included in all items with exception of "number of establishments."

† Value of products less cost of materials.

Detailed statistics of production for the Years 1921 and 1919 are given below:

	1921	1919	Per cent of decrease
Products, total value*	$214,612,000	$482,313,000	55.5
Ingots and bars	6,185,000	30,491,000	79.7
Plates and sheets	42,867,000	102,898,000	58.3
Rods	13,234,000	40,704,000	67.5
Tubing	14,943,000	42,127,000	64.5
Wire	23,604,000	37,626,000	37.3
Castings and machinery fittings	57,744,000	131,022,000	55.9
Miscellaneous, including electrical supplies, hardware, etc.	38,680,000	70,489,000	45.1
All other products	15,952,000	19,748,000	19.2
Received from custom work and repairs	1,403,000	7,208,000	80.5

* In addition, brass, bronze, and copper products to the value of $126,071,000 were reported in 1919 by establishments engaged primarily in the manufacture of other products; corresponding figures for 1921 are not available at this time.

ELECTRICAL APPARATUS IN THE ORIENT

S. Glen Vinson, of the Ideal Electric and Manufacturing Company, Mansfield, O., spoke on the above subject at the Electric Power Club in Asheville, N. C., recently, and is quoted in the **Electrical World** as wollows:

The aftermath of the world war caused in the Orient, as in this country, a period of huge stocks, sudden deflation of values and sharp drops in credit and exchanges. Conditions now, however, are rapidly adjusting themselves to a more sound and economical basis. Business is being resumed, not with a rush or with a boom spirit, but slowly and surely toward a normal, staple, solid footing.

Within the past six months it has been my good fortune to be able to study some of the conditions in the Far East very intimately. Sailing from San Francisco on April 19, I first visited Yokohama, Tokio, Kioto, Kobe and Osaka in Japan and, like any American visiting Japan for the first time, was amazed at the extent of her industries. The City of Osaka particularly is a second Pittsburgh—a busy, hustling, thriving place. In fact, all of Japan appears very well developed from a manufacturing standpoint. There are several very large companies there manufacturing electrical products, for the most part operated and owned entirely by the Japanese. Japan, of course, deserves some credit also for the electrical development of China. There she finds a natural outlet for her products as well as a dependable source of raw materials. Several projects are now under way that will utilize the inland waterfalls for electrical purposes as well as for the electrification of several of her railroads. All in all, I would say that there is a real opportunity for the American manufacturer in Japan, but home competition must be reckoned with very seriously and carefully.

From Japan I crossed to China, where I spent nearly two months and where I truly believe exists a great potential field for American manufacturers of electrical equipment. At the present time only the surface has been scratched. In China the American has one outstanding advantage. All of the Chinese seem to favor both American goods and American methods. China's big drawback always has been politics—an ever-changing directorate that up to now has not had the support of any two sections of the nation. There is a day coming— not too far in the future either—when a big man will take hold and pull all their little parties and cliques together, and then you will see a tremendous era of industrial expansion in China. Right now, even in her unsettled state, China is far from being dead commercially. Shanghai is a hustling commercial city —it has one 40,000-kw. central station, thoroughly modern and efficiently equipped in every way. Iron, textile and flour mills abound and a multitude of smaller plants are to be found. There are iron and steel mills in Hankow, about 600 miles inland on the Yangste River.

English Firmly Intrenched

The English are firmly intrenched here as elsewhere throughout the East, and they are bitter in their commercial prejudices against American firms and American goods. They may accept your account, but it is extremely unlikely that they will sell your goods. There are, of course, many good importing houses and brokers, a number of whom are American, but the real and only successful way to market your product in China is to follow the lead of the Standard Oil Company and the American Tobacco Company and install your own selling organization. This takes money and it takes time, but it will pay big dividends in the end to the firm with courage enough to go into the field aggressively and persistently.

Another condition to be seriously considered in exporting to China is credit for the Chinese are not good credit risks. Sight drafts with bills of lading attached are very risky. Moreover, Chinamen are accustomed to receive from both English and Germans what to us is almost unbelievable credit. One instance I ran across was of a fifteen-thousand dollar plant sold by a German firm on nine years' credit, payable $5,000 every three years. But, as I mentioned before, even in the face of this American goods will get the preference if they are rightly introduced, because the Chinese prefer them and also the American way of doing business.

TIN

There was a steady advance in the price of tin during December and the closing price of 38.75c, which was within ¼c of the highest point, showed an advance of 2¾c for the month. The price of Standard tin in London advanced from £175 to £182 2s 6d. There was also a rise in sterling exchange from $4.52 to $4.63 which added about 2½% to the cost of import.

The market started to improve immediately after the publication of the November statistics, which showed an increase of no less than 2,400 tons in the world's visible supply, but this had previously been discounted and the market was governed by future prospects rather than by past developments.

There was some good buying during the month both on the part of dealers and consumers, and the opinion seemed to be generally held that apart from the merits of the situation there is a group of powerful operators that could and would be able to establish the market on a permanently higher level.

The American deliveries in December amounted to 4,870 tons, which is a large tonnage for this season of the year and has only twice been exceeded, first in 1915 and again in 1918.

The available supplies of tin were smaller than they were in November and there was therefore a decrease in the world's visible supply of 356 tons as against 2,400 tons increase in November. The visible on December 31st stood at 24,930 tons, actually a few hundred tons greater than on August 31st when the price of tin was 6.50c per pound lower. The advance in the market, as stated above, is however, based on future prospects rather than past happenings.

TIN PRICES IN DECEMBER

Day	New York Straits	New York 99%.	London Stand. £ s. d.	London Straits £ s. d.	Singapore. Straits. £ s. d.
1	36.00	35.00	175 0 0	176 15 0	177 10 0
4	36.00	34.87½	174 5 0	176 0 0	178 0 0
5	36.25	35.12½	176 0 0	177 15 0	177 10 0
6	37.00	35.87½	179 5 0	181 0 0	179 10 0
7	37.37½	36.25	180 2 6	181 17 6	183 0 0
8	37.50	36.37½	180 15 0	182 10 0	183 15 0
11	37.37½	36.37½	178 17 6	180 12 6	183 5 0
12	37.00	35.75	175 10 0	177 5 0	181 0 0
13	37.37½	36.37½	176 0 0	177 15 0	178 15 0
14	37.62½	36.50	176 15 0	178 10 0	179 5 0
15	37.50	36.37½	176 15 0	178 10 0	180 10 0
18	38.37½	37.37½	180 5 0	182 0 0	181 0 0
19	38.12½	37.12½	180 0 0	181 15 0	184 5 0
20	37.87½	36.75	179 0 0	180 17 6	183 15 0
21	38.25	37.25	179 12 6	181 7 6	182 10 0
22	38.50	37.50	180 15 0	182 12 6	183 5 0
25	Christmas				
26	38.87½	37.50	Holiday		
27	39.00	37.62½	182 2 6	183 7 6	183 10 0
28	38.80	37.50	182 2 6	183 7 6	185 5 0
29	38.75	37.37½	182 2 6	183 7 6	186 0 0
High ..	39.00	37.62½	182 2 6	183 7 6	186 0 0
Low ..	36.00	34.87½	174 5 0	176 0 0	177 10 0
Aver. .	37.68	36.54	178 13 11	180 7 8	181 13 2

TIN IN 1922

There was a great expansion both in the supplies and deliveries of tin during 1922 as compared with the abnormal conditions in 1921.

The shipments from all the chief sources of supply showed increases, amounting in the case of the Straits Settlements to 26,700 tons. The Straits shipments were the largest since 1915 and averaged slightly more than 5,000 tons per month. The actual production in the Straits was somewhat less than the shipments variously estimated to the extent of 3,000 to 5,000 tons. The Chinese shipments were also in excess of the output by about 5,000 tons, and the refined tin derived from Bolivian ores increased both by reason of larger mining operations and by the disposal of surplus stocks of concentrates carried over from 1921.

The recovery in American business and the restoral of confidence led to an increase in the deliveries of foreign tin in this country of 31,400 tons of 120% as compared with 1921. They were the largest deliveries for any year with the single exception of 1918, and in addition to representing the gain in trade it is probable that they also represented the replacement of consumers' stocks which were allowed to run down below normal in 1921.

The New York Metal Exchange this Summer altered its methods of compiling the statistics of the world's visible supply by the inclusion of the current month's shipments of Banka and Chinese tin to this country, and therefore a comparison of the current figures with those of a year ago do not show accurately the change that has taken place in the visible supply. Actually the visible was about 2,000 tons less at the end of 1922 than it was at the beginning and in addition to this it is calculated that the invisible supplies decreased about 11,000 tons as follows:

Reduction in Chinese stocks	5,000
Reduction in Straits stocks by release of Billiton Company from Bandoeng agreement.	3,000
Reduction in Bolivian stocks	3,000

MONTHLY TIN STATISTICS

As compiled by the New York Metal Exchange, in tons of 2,240 pounds:

	Dec. 1922.	Nov. 1922.	Dec. 1921.
Shipments—			
Straits to Gr. Britain	1,225	680	1,825
Continent	300	1,200	395
United States	3,110	4,265	3,700
Total from Straits	4,635	6,145	5,920
Australia—			
To Gr. Britain	335	25	250
United States	...	...	...
Total	335	25	250
Banka and Billiton—			
To Gr. Britain	...	405	...
Continent	...	942	...
United States	...	127	...
Total	1,088	1,474	...
Chinese—			
To Gr. Britain	75	76	...
Continent	...	...	...
United States	740	1,200	...
Total	815	1,276	...
Consumption—			
London deliveries	1,946	1,851	1,766
Holland deliveries	563	188	241
United States	4,870	4,812	3,710
Total	7,379	6,851	5,717
Stocks—			
England, all kinds	6,208	5,712	7,850
Holland	2,273	2,395	5,264
United States	3,704	2,699	1,696
Total stock at end of month	12,180	10,806	14,810
Afloat—			
London	1,130	775	1,645
Banka and Billiton	1,142	1,347	560
European Continent	550	1,300	425
United States	9,928	11,058	7,780
Total afloat at the close of month	12,750	14,480	10,410
Total visible supply	24,930	25,286	25,220

Visible supply decreased 356 tons.

TIN DELIVERIES IN UNITED STATES

Monthly deliveries of tin in United States, exclusive of domestic refined tin, in tons of 2,240 pounds.

	1922.	1921.	1920.	1919.	1918.
Jan.	4,275	1,555	3,910	1,850	4,642
Feb.	3,215	1,585	5,200	2,450	3,398
Mar.	6,030	1,683	5,130	2,070	5,151
Apr.	4,995	1,590	3,305	36	5,045
May	4,740	1,225	3,550	20	4,056
June	5,130	1,590	6,500	68	6,782
July	4,590	1,525	5,530	132	7,169
Aug.	4,150	3,320	3,745	4,345	5,953
Sep.	5,050	2,605	4,860	4,825	5,454
Oct.	5,603	2,280	3,415	2,875	4,260
Nov.	4,812	3,250	3,395	6,665	2,379
Dec.	4,870	3,710	2,580	6,965	4,050
Tot.	57,460	25,918	51,120	32,301	58,339

VISIBLE SUPPLY OF TIN

World's visible supply of tin at end of each month in tons of 2,240 lbs.

	1922.	1921.	1920.	1919.
Jan.	26,216	18,994	21,056	6,388
Feb.	25,047	17,074	21,586	5,213
Mar.	22,353	16,073	18,305	6,410
April	22,017	15,670	19,342	5,173
May	22,910	18,352	20,976	5,843
June	23,566	17,968	18,851	6,828
July	21,502	20,316	18,546	13,555
Aug.	24,176*	19,358	19,858	18,149
Sept.	22,879*	21,189	18,996	21,630
Oct.	22,902	23,349	19,964	23,143
Nov.	25,286	22,806	19,823	20,462
Dec.	24,930	25,220	19,410	21,887
Average	23,649	19,697	19,726	12,890

* Includes current shipments of Banca and Chinese to U. S.

Annual Averages.

1917	18,803	1912	13,207
1916	18,585	1911	16,404
1915	15,208	1910	18,815
1914	14,907	1909	19,883
1913	12,377	1908	16,390

TIN SHIPMENTS FROM STRAITS

(Tons of 2,240 lbs.)

	1922.	1921.	1920.	1919.	*1918.
Jan.	5,515	1,055	3,910	3,340	4,000
Feb.	3,640	240	4,810	2,860	4,000
Mar.	4,985	915	2,795	2,254	6,000
April	5,350	1,800	3,872	1,127	4,000
May	6,420	3,667	4,930	1,704	5,000
June	6,505	1,425	4,261	1,629	4,000
July	4,035	3,975	3,865	7,302	5,000
Aug.	5,855	3,165	3,798	8,829	4,000
Sept.	4,050	5,300	4,529	5,465	7,000
Oct.	5,650	4,525	3,340	4,431	3,000
Nov.	6,145	4,065	2,630	4,135	5,000
Dec.	4,635	5,920	2,225	6,677	4,000
Total	62,785	36,052	44,965	49,763	55,000

*Estimated

Annual Totals.

1917	62,366	1913	62,550
1916	61,587	1912	59,318
1915	66,517	1911	55,470
1914	63,093	1910	54,579

The holdings of the F. M. S. Government now amount to about 11,000 tons, which with 4,000 tons of Banka held by the Dutch Government give an invisible stock in the East of about 15,000 tons. The liquidation of this tin is likely to be started this year when the price reaches £190 to £200 but sales will be regulated so as not to interfere with the stability of the market.

A comparison of the Straits shipments and American deliveries in 1922 and previous years is given below together with the New York Metal Exchange's figures of the world's visible supply at the end of each year in tons.

	Straits shipments.	American deliveries.	World's visible supply.†
1922	62,750	57,460	24,930
1921	36,052	25,918	25,220
1920	44,965	51,120	19,410
1919	49,763	32,301*	21,887
1918	55,000	58,339	7,787
1917	62,366	57,881	17,766
1916	61,587	56,216	20,737
1915	66,517	48,750	16,216
1914	63,093	41,700	13,396
1913	62,550	43,900	13,893
1912	59,018	49,500	10,977

* Small deliveries due to government restrictions. † At end of year.

The average price of Standard tin in London for 1922 was about £159 or £6 below that of 1921 and the lowest for any year since 1914. In New York the average price Straits was 32.58c or 2.58c higher than in 1921 in spite of the decline abroad due to the rise in Sterling Exchange. There was a fairly steady climb in prices since April and the average for the last quarter was 36.35c as against 30.70c during the first quarter.

A comparison for the past ten years is given below:

	High	Low	Average
1922	39.00	28.75	32.58
1921	39.00	25.50	30.00
1920	65.00	32.50	50.36
1919	72,50	52.75	65.54
1918	110.00	70.00	86.80
1917	86.00	42.50	61.65
1916	56.00	37.50	43.48
1915	57.00	32.00	38.66
1914	65.00	28.50	35.70
1913	51.00	36.75	44.32
1912	51.05	42.05	46.43

STRAITS TIN PRICES.

Average prices of Straits tin for prompt delivery in New York.

	1922.	1921.	1920.	1919.	1918.
Jan.	32.11	36.11	62.89	72.50	84.00
Feb.	30.82	32.47	60.00	72.00	85.00
Mar.	29.17	28.85	61.99	71.75	87.00
April	30.65	30.41	62.20	72.26	90.00
May	30.97	32.52	55.07	71.94	105.00
June	31.54	29.57	48.62½	71.20	97.00
July	31.82	27.69	49.37½	70.39	98.00
Aug.	32.43½	26.40	47.69	63.78	90.00
Sept.	32.40	26.73	44.62	55.81	80.00
Oct.	34.64	27.74	40.64	55.62	80.00
Nov.	36.72½	29.02	37.02	54.17	74.00
Dec.	37.68	32.49	34.15	55.06	71.50
Av.	32.58	30.00	50.36	65.54	86.80

Yearly Averages.

1921	30.00	1915	38.66
1920	50.36	1914	35.70
1919	65.54	1913	44.32
1918	86.80	1912	46.43
1917	61.65	1911	42.68
1916	43.48	1910	34.27
1915	14.15	1912	14.82

AMERICAN TIN DELIVERIES

The New York Metal Exchange furnishes the following statistics concerning the deliveries of tin in the United States in 1922 with comparative figures for the past ten years.

(Tons of 2,240 lbs.)

	Imported Tin	Refined Output*	Total
1922	57,460	9,180	66,640
1921	25,918	8,781	34,699
1920	51,120	14,513	65,633
1919	32,301	11,596	43,897
1918	58,027	9,854	67,881
1917	57,881	4,849	62,730
1916	56,216	5.600	61,816
1915	48,750	nil	48,750
1914	41,700	nil	41,700
1913	43,900	nil	43,900
1912	49,500	nil	49,500

* Refined from Bolivian ores commencing in 1916.

PLATINUM

In the first ten days of December platinum advanced $2.00 to $3.00 an ounce, sales of appreciable lots being made at $107 to $108 an ounce for crude and $111 to $113 an ounce for sheets and wire. In the middle of the month prices were withdrawn by the leading

sellers in expectation of a further sharp advance. This actually took place on December 18th when the market was advanced $10.00 an ounce to $118.00. The advance in the first three weeks of December was based upon light importations from Colombia with complete cutting off of supplies from Russia, reduction of local stocks and a general buying movement of consumers.

Production in Russia ceased because of the severe measures taken by the Soviet to prevent exportations. The sharp rise in sterling exchange also had some bearing upon the situation. Most of the local stocks of Colombian held by commission houses, were sold when the demand was greatest.

After the price had been advanced to $118.00 per ounce however, there was a marked falling off in business. Consumers were very reserved, not only because of the indisposition to accumulate stocks before inventory taking but also because of the high prices demanded. Most of the small consumers, rather than make new purchases, subsisted on gleanings from previous stocks. Early in January, however, several large refiners came into the market and one purchase of 250 ounces was made and another inquiry put out for 300 ounces.

Importations from South America at New York during December amounted to about 900 ounces of which about 800 ounces came in after December 15th. In November 25 boxes, averaging 40 to 50 ounces each, were imported and in October 39 boxes entered through the Port of New York. Imports from London and the European Continent were small.

Manufacturing jewelers who were very reserved for several weeks are now expected to come into the market as consumers' supplies are about exhausted. Iridium was in light supply and prices remained steady at $250 an ounce. Native osmiridium remained steady at $145.00 an ounce. Palladium advanced $1.00 an ounce about the middle of the month to $58.00 an ounce, and by the end of the month the price had advanced to $65.00 an ounce. The dental industry, manufacturing jewelers and refiners were the principal buyers.

LEAD

With none of the usual seasonal falling off, December was a month of heavy consumption in lead. The customary shut-down for repairs in some of the principal lines was omitted, and paint, cable and storage battery interests drew as largely as at any time during the year.

Prices continued the steady upward trend commenced eighteen months before, which has broken all records for an unterrupted period of advancing values in lead. The gradual character of the long movement has been due largely to the conservatism with which each advance has been made by the leading smelters, arriving from their aversion to undue inflation. Another cause has been the comparative absence of speculation and operators would have found it difficult to make large engagements ahead at any time even if the high levels had not discouraged their being heavily on the long side of the market.

At the opening of December, the American Smelting & Refining Company prices were 7.10c New York, 6.90c E. St. Louis, and on Dec. 19th these were raised to 7.25c New York, 7.05c E. St. Louis, which remained in force to the

LEAD AND ZINC PRICES IN DECEMBER

Day	Lead			Zinc		
	New York*	St. Louis†	London	New York	St. Louis§	London
			£ s. d.			£ s. d.
1 ..	7.10	6.97½	25 17 6	7.45	7.10	37 15 0
2 ..	7.10	6.97½	.. .. .	....	....	.. .. .
4 ..	7.10	6.97½	25 17 6	7.47½	7.12½	38 0 0
5 ..	7.10	6.97½	25 17 6	7.55	7.20	38 7 6
6 ..	7.10	6.97½	25 17 6	7.65	7.30	38 15 0
7 ..	7.10	6.95	26 0 0	7.65	7.30	38 15 0
8 ..	7.10	6.95	26 0 0	7.65	7.30	38 5 0
9 ..	7.10	6.95	.. .. .	....	....	.. .. .
11 ..	7.10	6.92½	26 0 0	7.62½	7.27½	38 5 0
12 ..	7.10	6.90	26 0 0	7.55	7.20	37 17 6
13 ..	7.10	6.90	26 0 0	7.55	7.20	37 5 0
14 ..	7.10	6.90	26 0 0	7.50	7.15	37 7 6
15 ..	7.10	6.87½	26 0 0	7.47½	7.12½	37 5 0
16 ..	7.10	6.87½	.. .. .	....	....	.. .. .
18 ..	7.10	6.90	26 0 0	7.45	7.10	37 10 0
19 ..	7.25	7.00	25 15 0	7.40	7.05	37 7 6
20 ..	7.25	7.05	26 5 0	7.40	7.05	37 5 0
21 ..	7.25	7.07½	26 10 0	7.35	7.00	37 5 0
22 ..	7.25	7.07½	26 7 6	7.35	7.00	37 10 0
23 ..	7.25	7.07½	.. .. .	....	....	.. .. .
25 ..	Christmas					
26 ..	7.25	7.07½	Holiday	7.35	7.00	Holiday
27 ..	7.25	7.07½	26 7 6	7.35	7.00	37 7 6
28 ..	7.25	7.10	26 7 6	7.35	7.00	37 12 6
29 ..	7.25	7.10	26 7 6	7.35	7.00	37 12 6
30 ..	7.25	7.10	.. .. .	....	....	.. .. .
High	7.25	7.12½	26 10 0	7.65	7.30	38 15 0
Low	7.10	6.85	25 15 0	7.35	7.00	37 5 0
Aver.	7.16	6.99	26 1 7	7.47	7.12	37 15 2

* A. S. & R. Price.
†Outside market. §Prime Western.

end of the month. The outside market was almost constantly about $2.00 per ton above these figures.

The estimated production for the year was about 461,000 tons from domestic ores and 70,000 tons from foreign ores and bullion as compared with 398,000 tons and 50,000 tons respectively in 1921. In spite of this large output stocks at the end of the year are much less than at its beginning. Producing interests had a considerable tonnage of high cost lead in the form of concentrates carried since the price of lead collapsed in 1920. These stocks were all absorbed in the first half of 1922.

There were importations of Mexican lead to New York during December which, however, failed to affect materially the situation as to supplies.

Foreign prices for lead showed an equally strong market abroad, London figures ruling at around £26 with little fluctuation.

The position as to supplies of lead the world over continues very close. Labor troubles in Spain and Australia have limited the production of those countries throughout the year. It would seem that the situation is largely the result of non development of new producing districts, and while the present high level cannot be expected to remain indefinitely, some opinions hold that with the expansion of the world's needs, lead will stabilize itself even after the eventual recession at a higher normal level than formerly.

LEAD PRICES, ST. LOUIS.

Average Prices, East St. Louis Basis.

	1922.	1921.	1920.	1919.	1918.
Jan. ...	4.40½	4.78	8.32	5.36	6.70
Feb. ...	4.40	4.29	8.62	4.83	6.94
Mar. ...	4.43	4.03	8.93	5.01	7.10
April ...	4.97	4.30	8.71	4.87	6.76
May ...	5.30	4.82	8.52	4.80	6.70
June ...	5.58	4.34	8.36	5.06	7.53
July	5.45	4.28	8.58	5.42	7.75
Aug. ...	5.55	4.23	8.89	5.60	7.75
Sept ...	5.90	4.41	8.23	5.81	7.75
Oct.	6.36	4.47	7.08	6.22	7.75
Nov.	6.88½	4.38	6.16	6.68	7.75
Dec.	6.99	4.40	4.75	6.96	6.48
Year ...	5.52	4.39	7.93	5.55	7.25

Annual Averages.

1917	8.92	1912	4.38
1916	6.80	1911	4.31
1915	4.57	1910	4.33
1914	3.74	1909	4.19
1913	4.26	1908	4.10

LEAD IN 1922

The preliminary report on lead for 1922 issued by Messrs. C. E. Siebenthal and A. Stoll of the U. S. Geological Survey shows a gain was made both in the mine and refined output of lead in the United States. There was furthermore an increase in the output of refined lead from foreign ores. The report in part is given below:

Mine Production.

The output of soft lead by mines of the Mississippi Valley (including the small output of the Eastern States) was about 256,000 short tons, and that of argentiferous lead by mines of the western States was about 208,000 tons, a total of 464,000 tons. The corresponding figures for 1921 were 237,209 tons from the Mississippi Valley and 172,491 tons from the western States, a total of 409,700 tons. The southeastern Missouri district made the largest output, nearly double that of any other. Its output was 184,000 tons, as compared with 175,160 tons in 1921. The Coeur d'Alene district of Idaho came next with about 98,000 tons, nearly the same as in 1921. Utah made an output of about 67,000 tons, a gain of 50% over 1921.

Imports.

The imports of lead in ore under the old tariff from January 1st to September 21st, inclusive, the only period for which figures are available, were 6,368 tons, furnished chiefly by Canada, Mexico, and South America, and those of lead in bullion were about 52,000 tons, almost wholly from Mexico, as compared with a total of 42,984 tons in 1921. The lead content of lead ore and base bullion in bonded warehouses on January 1st was 19,186 tons, all of which was withdrawn before September 22nd.

Refinery Output.

The output of primary domestic desilverized lead in 1922 was about 181,000 short tons, of soft lead about 204,000 tons, and of desilverized soft lead about 76,000 tons, making a total output from domestic ores of about 461,000 tons of refined lead, as compared with 398,222 tons in 1921, which was made up of 187,962 tons of desilverized lead, 157,513 tons of soft lead, and 52,747 tons of desilverized soft lead. The output of lead smelted and refined from foreign ore and bullion was about 70,000 tons, as compared with 50,-

367 tons in 1921. The total lead smelted or refined in the United States was thus about 531,000 tons, as compared with 448,589 tons in 1921. The output of antimonial lead is reported to be about 6,500 tons, as against 10,064 tons in 1921.

Imports and Exports

The exports of lead of foreign origin were about 35,000 tons and of lead of domestic origin about 5,500 tons, as compared with 34,369 tons and 1,624 tons, respectively, in 1921. The imports of refined pig lead of which statistics are available for the period under the old tariff only (Jan. 1st to September 21st inclusive) were 2,500 tons, as compared with 31,301 tons in 1921 and 35,719 tons in 1920.

Consumption.

From a total supply of about 533,000 tons of refined lead (exclusive of stocks) there was withdrawn for export about 38,000 tons, leaving 495,000 tons available for consumption in the United States, as against 444,872 tons in 1921 and 538,020 tons in 1920.

Prices.

The average quoted price of lead for prompt delivery at New York for the year was a little under 5.7 cents a pound, as compared with an average selling price of 4.5 cents in 1921. At the beginning of 1922 the price was 4.7 cents, and it remained at that figure through the first three months. By early June the price had risen to 5.8 cents, and it stood slightly under this figure until the latter part of August. A gradual rise brought the price to about 7.25 cents at the end of the year.

Comparisons

A comparison of the production and apparent consumption during the past ten years is shown in the following table: (In tons).

	*Production	Available for Consumption
1922	531,000	495,000
1921	448,589	444,872
1920	529,657	538,020
1919	482,220	434,143
1918	640,195	542,975
1917	610,679	515,445
1916	571,134	460,703
1915	550,055	419,560
1914	542,122	452,512
1913	462,460	408,146

* From foreign and domestic ores.

The exports of lead during the same period were as follows, in tons:

	Foreign	Drawback	Domestic
1922	35,000		5,500
1921	34,369		1,624
1920	17,363	6,175	2,730
1919	40,976	1,936	10,510
1918	59,416	3,426	41,831
1917	37,652	7,537	53,688
1916	9,880	5,171	100,500
1915	38,618	3,983	88,306
1914	21,545	9,489	58,722
1913	44,544	9,779	nil

Prices.

The fluctuations in the open market in St. Louis during 1922 and the nine preceding years were as follows:

	High	Low	Average
1922	7.10	4.35	5.52
1921	5.05	3.90	4.39
1920	9.15	4.45	7.93
1919	7.50	4.60	5.55
1918	7.75	5.70	7.25
1917	12.00	5.42½	8.92
1916	8.25	5.45	6.80
1915	7.50	3.50	4.57
1914	4.10	3.35	3.74
1913	4.72½	3.85	4.26

LEAD PRICE CHANGES.

The American Smelting & Refining Company's changes in the base price of lead since the beginning of 1921 are given below:

1921—		1922—	
Opening	4.75	Mar. 30	4.80
Feb. 15	4.60	April 3	4.90
" 18	4.50	" 7	5.00
" 19	4.40	" 20	5.10
" 24	4.20	" 24	5.25
" 25	4.00	May 16	5.35
Mar. 28	4.10	" 18	5.50
" 31	4.25	" 29	5.65
April 26	4.35	June 7	5.75
" 28	4.50	Aug. 21	5.90
May 4	4.75	Sept. 14	6.00
" 10	5.00	" 19	6.10
June 6	4.75	" 22	6.25
" 10	4.50	" 27	6.35
" 22	4.40	Oct. 6	6.50
Sept. 2	4.50	Nov. 1	6.75
" 9	4.60	" 2	7.00
" 20	4.65	" 24	7.10
" 23	4.70	Dec. 19	7.25

ZINC

Again during December the price of zinc was mainly affected by the foreign market according to the presence or absence of foreign buying, though the condition on the whole was steadier than in November.

Thus in the early part of the month as a result of large London orders the price rose from 7.10 to 7.30c E. St. Louis for prompt shipment. At this point London withdrew temporarily, and the price sagged by easy stages to around 7.00c. Some export business was seen again towards the close of the month but not in sufficient volume to cause recovery.

In addition to the foreign demand, however, there was in the latter part of December a better domestic business than for many weeks previous.

This appears to have been due partly to improved conditions in galvanized sheets. The independent mills found the field open to them by the fact that the Steel Corporation were fully booked in this line for the first quarter of 1923. There was in consequence a good deal of buying for both prompt and futures extending into April.

Orders from the brass trade also helped to account for this domestic activity. This is a noteworthy feature after the long period during which the post-war stocks of brass scrap have filled their requirements, and with better prospects for their products the brass mills bought considerable quantities of zinc over the first few months of 1923.

As to the outlook for further export there seems to be promise of business for some months to come though probably in diminishing volume. Stocks abroad are small. Belgium at present fails to turn out more than about 12,000 tons per month, and the Silesian output is still negligible through the continued disorganization of that region.

Previous to the war England consumed about 175,000 to 200,000 tons per annum. This year on an estimated consumption there of about 100,000 tons, England has been forced to come here for zinc. The galvanizing business in that country has been slow in its postwar recovery but its rate of "come-back" has lately been more rapid than that of the foreign zinc output.

The statistical position of zinc here is still strong, the stocks in smelters' hands December 31st being only 18,252 tons, which represented a decrease of 1,245 tons over the previous month. The production in December showed increase in output, being 42,841 tons as against 40,200 in November. When it is considered that of the 42,841 tons, 10,246 were for export, it will be seen that the foreign demand will be needed for stability if this output is to continue.

SHEET ZINC.

Stocks of sheet zinc at the end of 1922 are estimated to have been 20% to 25% less than a year ago. Most consumers of both sheet and strip zinc bought only for immediate needs in December. There was generally an indisposition to increase stocks before the taking of inventories, but otherwise the demand

U. S. ZINC STATISTICS.

From the monthly reports of the American Zinc Institute, in tons of 2,000 lbs.

	Production		Deliveries	
	1922.	1921.	1922.	1921.
Jan. ..	23,706	25,916	24,636	21,021
Feb. ..	22,513	17,769	24,067	15,702
Mar. ..	26,532	15,741	30,394	12,771
April ..	25,506	16,550	34,040	17,959
May ..	27,419	18,026	38,738	13,886
June ..	28,547	19,443	39,380	13,275
July ..	31,917	15,495	32,875	12,973
Aug. ..	31,423	14,621	38,412	20,480
Sept. ..	33,134	14,367	35,957	19,781
Oct. ..	39,940	14,538	40,703	24,849
Nov. ..	40,200	21,135	38,746	24,910
Dec. ..	42,841	22,013	44,086	22,454
Total	373,678	215,614	422,034	220,064

	Stocks at Smelters*		Retorts in Operation*	
	1922.	1921.	1922.	1921.
Jan. ..	65,678	75,953	44,457	44,781
Feb. ..	64,124	78,020	43,357	37,782
Mar. ..	60,262	80,990	45,373	35,297
April ..	51,728	79,581	42,773	39,673
May ..	40,409	83,721	48,765	40,043
June ..	29,576	89,889	52,677	35,789
July ..	28,618	92,408	54,909	30,349
Aug. ..	21,629	86,549	57,193	29,576
Sept ..	18,806	81,135	65,936	29,429
Oct. ...	18,043	70,824	72,116	27,949
Nov. ..	19,497	67,049	75,664	46,444
Dec. ..	18,252	66,608	80,863	42,369

* At end of month.

was also very moderate, although some interest was shown in corrugated sheets and strip zinc for shipment over the first month or two of 1923, and a few orders for roofing were placed for shipment over the first quarter of 1923.

The lull in buying, however, was not unwelcome to the mills as it enabled them to catch up with deliveries. Today zinc rollers can make shipments within twelve to fifteen days from receipt of order, but freight embargoes and other delays to transportation are still making deliveries to consumers unsatisfactory. As sheet mills catch up with deliveries some of them may close temporarily for repairs, but producers continue to speak optimistically of the future.

Zinc products as well as copper and brass products are finding increased uses in building operations. The manufacture of hardware from "white brass" is attracting some attention. The so-called "white brass" is made by increasing the percentage of zinc in the alloy with copper to 85%.

One manufacturer is making commercial tubing of zinc and it is proposed to use zinc in the manufacture of all products now being made of copper and brass. Little if any change was made in the price of sheet zinc in December, orders being taken at 9.25c to 9.50c per pound f.o.b. mill.

PRIME WESTERN ZINC PRICES.

Average Prices, East St. Louis Basis.

	1922.	1921.	1920.	1919.	1918.
Jan.	4.71	5.44	9.22	7.12	7.71
Feb.	4.50	4.95	8.82	6.36	7.73
Mar.	4.65	4.73	8.62	6.18	7.42
April ...	4.91	4.75	8.26	6.16	6.81
May	5.10	4.86	7.72	6.11	7.14
June ...	5.35	4.44	7.58	6.57	7.85
July	5.77	4.27	7.82	7.56	8.43
Aug.	6.24	4.19	7.95	7.50	8.73
Sept.	6.56½	4.25	7.77	7.20	9.31
Oct.	6.85½	4.61	7.25	7.49	8.77
Nov.	7.14	4.68	6.37	7.83	8.39
Dec.	7.12	4.85	5.84	8.40	8.21
Average	5.74	4.67	7.77	7.04	8.04

Annual Averages.

1917	8.93	1912	6.93
1916	13.57	1911	5.70
1915	14.16	1910	5.42
1914	5.11	1909	5.39
1913	5.61	1908	4.62

ZINC IN 1922

According to the preliminary report of Messrs. C. E. Siebenthal and A. Stoll of the United States Geological Survey the mine and smelter production of zinc increased about 70% in 1922. The report in part is as follows:

Mine Production.

The recoverable zinc content of ore mined in 1922 was about 442,000 tons, as compared with 256,746 tons in 1921. The output of the eastern states was about 90,000 tons (80% from New Jersey), that of the central states about 272,000 tons, and that of the western states about 80,000 tons, as compared with 67,711, 175,262, and 13,773 tons, respectively, in 1921. The upper Mississippi Valley region is credited with an output of about 18,000 tons, and the Joplin district with an output of about 254,000 tons. Oklahoma made the largest output, about 186,000 tons, more than twice as large as that of any other State. In 1922 Montana (almost wholly the Butte district) apparently produced about 57,000 tons, as compared with 11,638 tons in the Butte district in 1921.

Imports of Ore.

The imports of zinc in ore for the period January 1st to September 21st, inclusive, were 1,810 tons, as against 2,705 tons in the entire year 1921, most of which in both years was imported from Mexico. The zinc content of zinc ore in bonded warehouses on January 1st was 14,292 tons, all of which was withdrawn before September 22nd.

Ore Prices.

Early in January zinc concentrates containing 60% of zinc were selling in the Joplin district at $28 a ton, having risen from $20 a ton in August, 1921. The price receded to $25.00 through February and then by a steady climb rose to $45.00 a ton by the middle of November. At the end of the year concentrates were selling at $40.00 a ton.

Smelter Production.

The output of primary metallic zinc from domestic ores in 1922 was about 338,000 tons and from foreign ores about 1,000 tons, a total of 339,000 tons, as compared with 198,232 tons from domestic ores and 2,268 tons from foreign ores, a

total of 200,500 tons in 1921. In addition to primary zinc there was an output of about 24,000 tons of redistilled secondary zinc, as compared with 17,573 tons in 1921, making a total supply of distilled zinc and electrolytic zinc in 1922 of about 363,000 tons, of which 95,000 tons was high grade and intermediate, 46,000 tons select and brass special, and 222,000 tons prime western. The output of the corresponding grades in 1921 was 29,080, 47,814, and 141,179 tons, respectively, a total of 218,073 tons. Of the total output of primary zinc in 1922, about 77,000 tons was made in Illinois, as against 48,865 tons in 1921; 64,000 tons in Oklahoma, as against 41,244 tons; and 73,000 tons in Pennsylvania, as against 36,378 tons.

Imports.

The imports of foreign slab zinc up to September 21st, when the new tariff went into effect—no later statistics being available—amounted to 45 tons, as compared with 6,739 tons in 1921. No American zinc was returned in 1922 as against 731 tons in 1921. Not included in the imports given above is 415 tons of sheet zinc imported and entered for consumption in the first nine months of 1922, as compared with 6,688 tons in 1921.

Exports and Consumption.

The exports of zinc made from foreign ores were about 2,600 tons and those of zinc made from domestic ores were about 28,000 tons, as compared with exports of 1,256 and 3,569 tons respectively, in 1921. The exports of domestic zinc included about 3,000 tons of sheet zinc, as against 1,816 tons in 1921. The stock of zinc at smelters and in warehouses at the end of November was about 15,500 tons, as against 70,452 tons at the end of 1921. The apparent consumption of primary zinc in 1922 was thus about 363,000 tons, as compared with 203,600 tons in 1921, and 323,043 tons in 1920.

Statistics of imports and exports are taken from the records of the Bureau of Foreign and Domestic Commerce; the imports include only those for the period before the new tariff went into effect (January 1st to September 21st), but the exports include the actual exports for ten months, plus an estimate for November and December.

Retort Operations.

At the end of November 74,692 retorts were reported in operation out of a total of about 150,000 retorts at active plants, as compared with 42,200 retorts in operation at the end of 1921. Advices in December put the number expected to be in operation at the end of the year at about 77,000 retorts (since reported at 80,863).

Prices.

The average quoted price for prime western zinc for immediate delivery at St. Louis in 1922 was slightly above 5.7 cents a pound, as compared with an average selling price for all grades of 5.0 cents in 1921. The price of prime western zinc at the beginning of the year was 4.85 cents in the St. Louis market and after declining to 4.5 cents through February, it rose steadily until it reached 7.35 cents about the middle of November. The price at the end of the year was about 7 cents.

Comparisons.

The preliminary figures for 1922 compare with the results for previous years as follows, (tons):

	Production*	Consumption	Exports
1922 ..	339,000	363,000	30,600
1921 ..	200,500	203,600	4,825
1920 ..	463,377	323,044	114,266
1919 ..	465,743	323,964	146,297
1918 ..	517,927	423,792	106,650
1917 ..	669,573	413,643	220,064
1916 ..	668,343	459,317	206,365
1915 ..	489,519	364,855	131,410
1914 ..	353,049	299,983	74,510
1913 ..	346,676	295,370	21,269
1912 ..	338,806	340,341	14,139

* Primary zinc.

	Stocks at Smelters (at the end of the year) (Tons)	Retorts Operating
1922	18,252	80,863
1921	66,608	42,200
1920	71,037	56,000
1919	36,793	107,500
1918	41,241	123,350
1917	53,689	136,639
1916	17,508	204,693
1915	14,221	156,568
1914	19,984	94,468
1913	40,659	105,684
1912	4,522	99,400

Prices.

The fluctuations in the price of prime Western zinc (spelter) during 1921 and the other years back to 1912 were as follows:

	High.	Low.	Average.
1922	7.35	4.47½	5.74
1921	5.60	4.12½	4.67
1920	9.50	5.50	7.77
1919	9.00	6.00	7.04
1918	9.50	6.62½	8.04
1917	10.87½	7.50	8.93½
1916	21.00	8.20	13.57
1915	27.00	5.55	14.16
1914	6.00	4.60	5.11⅓
1913	7.17½	4.95	5.61
1912	7.50	6.25	6.93

REVIEW OF THE JOPLIN DISTRICT FOR 1922

December 1922 was a month in which all previous records for shipments for both zinc and lead ores were broken. Zinc shipments reached the astounding total of 97,341 tons, or double that of any other month during the entire year. Lead ore shipments reached a total of 12,109 tons, or 40% greater than any previous month of the year. These heavy shipments, however, came about through the exceptional shipping facilities provided by the American Railway Association to meet the crisis which had come through the strangulation of the industry during the latter Summer and Fall months, and this shipment therefore represented a heavy backing up of ores long purchased and which had been waiting transportation for many weeks. The average shipment per week was 19,468 tons of blende ores, and averaged $42.38 per ton. Calamine ores averaged 139 tons per week, with an average price of $26.02. Lead ores average 2,422 tons, with an average price of $92.97 per ton. The year closed with 45,000 tons of surplus stocks held by the ore producers in their bins, while there was still an equal amount of zinc concentrate owned by the smelters which was in process of shipment from the field. Of lead ores it was estimated that but 400 tons of surplus stocks was left in the bins of the producers at the close of the year.

The year's record of zinc shipments surpasses that of all previous years except that of 1920. Its value, however, was exceeded by all those years between 1915 and 1920, but this value exceeded that of 1921 two and one-half times.

Lead shipments reached a total of 94,386 tons, valued at $7,227,488. This is also a record production, and is not exceeded by any year in tonnage, and is exceeded only by 1920 in value. The average price paid for zinc ores carrying 60% zinc was $35.01, while calamine ores averaged $23.39. Lead ores averaged $76.57. The total value of all ores shipped from the district was $25,529,475, and aggregate of new wealth, which has done much to revive commercial interest in the Mississippi valley. The monthly shipment and price tables indicate a gradual improvement throughout the year of 1922. This applied with equal force to both zinc and lead ores, the only difference being that zinc ore started at the bottom of the ladder and mounted toward normal prices, while lead ores started at normal prices and advanced 50% above normal prices. Only the united action of every branch of the industry saved the zinc mining industry and the zinc smelting industry from ruin the last quarter of the year, when the transportation interests of the country were finally brought to realize that something must be done to move the tremendous quantity of zinc concentrates which had piled up in the zinc mining district to the depleted ore bins of the smelters. The final solution of the problem was a comparatively simple one which was merely that of utilizing empty coal gondolas belonging to eastern railroads which were being sent back east and were routed the zinc mining district and there loaded with these concentrates and sent on their way. The shipments of December were indeed remarkable but the lack of a motive power for moving cars now loaded with the zinc ores in the field and on sidings would show an equal if not a greater shipment during January 1923.

The year opened with a surplus stock of 70,000 tons of zinc ore and closed with 45,000 tons owned by the ore producers. There are approximately 45,000 tons of ore owned by the smelters and either loaded on the cars or still in the bins of the ore producers awaiting shipment. The surplus stocks of lead ores amounted to but 400 tons as compared with 600 tons last year.

The year closed with great activity

in prospecting and development and every indication points to a revival of mining activities in the old Missouri camps which production should be available during the middle or latter part of the year. How great this production will be will depend upon the maintenance of ore prices, and whether or not the Oklahoma district can continue its present tonnage capacity.

Zinc Shipments of 1922 from Joplin District

Month	Tons.	Average Price	Total Value.
January ...	28,431	26.45	$751,972
February ..	27,043	25.06	677,849
March	31,601	26.33	832,361
9pril	45,185	28.81	1,297,413
May	46,124	29.51	1,361,143
June	48,589	32.03	1,553,353
July	47,268	33.34	1,575,949
August	29,479	36.25	1,069,220
September .	42,651	38.03	1,621,514
October	28,537	41.43	1,182,378
November ..	48,742	45.10	2,199,471
December ..	97,341	42.33	4,121,103
Year, 1922	520,991	35.01	$18,242,428

Lead Shipments of 1922 from Joplin District

January ...	6,626	60.34	$400,400
February ..	7,806	60.00	468,360
March	7,502	61.17	614,634
April	9,002	68.27	614,634
May	7,220	70.90	511,964
June	6,653	77.60	516,345
July	8,951	76.60	686,956
August	5,803	79.27	460,036
September .	7,526	82.74	622,745
October	7,140	87.07	621,682
November ..	8,038	92.01	739,636
December .	12,109	92.97	1,125,777
Year, 1922	94,386	76.57	$7,227,488

QUICKSILVER

Under an improved demand quicksilver advanced during December $3.00 to $4.00 a flask. One sale of 25 flasks was made early in the month at $70.50 per flask, f.o.b. Lynn, Mass., but this was exceptional. Most of the sales were made at $71.00 to $72.00 per flask and by the end of the month the market had advanced to $74.00 to $74.50 with exceptional sales at $75.50 per flask.

Italian importers booked several fair-sized orders in the first week of the month for February delivery. No importations from Italy were made at New York until December 29 when the steamship Bourbanais arrived from Leghorn with 1,000 flasks. This was the first arrival from Europe since the new tariff became effective but early in the month 60 flasks arrived from Mexico. Other shipments from Italy are expected early in January. It is notable, however, that since the higher American duty was levied, Italy has sold largely to Germany and the Orient. Most of the German orders were paid for in merchandise. Italian shipments to the Orient and Germany combined are about equal the amount formerly sent from Italy to the United States.

Shortly after the middle of the month explosive manufacturers came into the market buying 100 and 200 flask lots at $71.00 to $72.00 per flask, mainly at inside price, but the buying ceased almost as suddenly at is began when the tendency of prices was sharply upward. Explosive manufacturers also purchased considerable quicksilver in London but offerings of Italian metal here through London were too high to result in business. Spanish quicksilver was also held above the domestic market but American dealers succeeded in buying about 2,000 flasks in Italy which are expected to arrive here the latter part of January or early in February. Most of the American quicksilver output was held for higher prices.

Following larger purchases by explosive manufacturers a number of small lots ranging from five and ten flasks to 25 flasks were sold to small consumers although there was a general indisposition to accumulate stocks before inventory taking. Mercurial manufacturers, makers of dental supplies and wholesale druggists, as well as explosive manufacturers, were the principal buyers.

It is understood that about 800 flasks of the 1,000 flasks brought in by the Steamship Bourbanais was sold to arrive. Dealers estimate that stocks of quicksilver held here on January 1st, 1923, are only one-third of the stocks carried January 1st, 1922.

ANTIMONY

The market for antimony during December was dull and neglected, with a continued slight decline through the month, prices opening at 6.45c duty paid New York and closing at 6.30c.

Consumers' stocks bought prior to the tariff advance were apparently still ample, and they showed no inclination to add to their year-end inventories in spite of concessions offered toward the close of the month.

The chief steadying feature was the paucity of offerings from China. There was a limited quantity sold early in December for future shipment at 4.25c c.i.f. New York in bond, but for the most part such offerings as appeared were around 4.40c c.i.f. New York. It is believed that stocks in China are small, particularly in crude antimony, the low prices having brought diminished output. There has naturally been little buying from this country since the tariff advance, the importations prior to that time having been sufficient to cover several month's needs. Some accumulation abroad might therefore have been expected, but apparently has not developed, which may cause a stringency when with the near exhaustion of spot stocks the need of further import returns.

ANTIMONY PRICES.

Prices for Chinese and Japanese antimony (ordinary grades) in New York.

	1922.	1921.	1920.	1919.	1918.
Jan. ...	4.45	5.22	10.53	7.59	14.23
Feb. ...	4.38	5.23	11.55½	7.24	13.67
Mar. ...	4.25	5.30	10.97	6.83½	13.12
April ..	4.88	5.15	10.45	6.82½	12.52
May ...	5.42	5.25	9.44	7.56	12.41
June ..	5.13	5.06	7.93	8.37½	12.99
July ...	5.08	4.68	7.43	8.81	13.18
Aug. ...	5.29	4.55	7.04	8.92	13.81
Sept. ...	6.43	4.53	7.10	8.53	13.93
Oct. ...	6.80	4.94	6.62½	8.60	13.44
Nov. ...	6.54½	4.66	6.05	9.06	9.10
Dec. ...	6.35	4.51	5.46½	9.56	8.19
Av.	5.42	4.92	8.38	8.16	12.55

Yearly Averages.

1921	4.92	1915	29.52
1920	8.38	1914	8.53
1919	8.16	1913	7.43
1918	12.55	1912	7.63
1917	20.73	1911	7.48
1916	25.33	1910	7.27

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ALUMINUM

A stronger tone was developed in the aluminum trade toward the middle of December after considerable business transacted in the first week of the month at lower prices. Sales of several hundred tons of Norwegian aluminum ingots were made about December 6th at 16.00c per pound for 98-99% virgin and 16.50c for 99% plus virgin in bond for shipment over first six months of 1923. At first it was very difficult to interest American consumers, but about the middle of the month when it became apparent that some important steps were about to be taken to partially eliminate competition from Swiss and Norwegian producers with American producers, the demand was more active. The first evidence of the strengthening of the market was an advance of ½c per pound in the price of foreign ingots to 17.50c in bond and later to 18.00c in bond.

Sales that were made early in the month were equivalent to 21.50c f.o.b. N.Y. duty paid while small lots sold at 22.00c f.o.b. N. Y. duty paid for 99% plus, and at ½c less for 98-99% virgin. At the close of December it was difficult to make purchases of imported aluminum under 23.00c for 99% plus or under 22.50c for 98-99% virgin, duty paid f.o.b. New York.

The Aluminum Company of America made no change in the position it assumed shortly before the higher American American producer continued to refuse to quote prices for publication. The president of the Aluminum Company of America, however, upon sailing for Europe on December 14th was credited with the following statement: "An increase of four cents a pound has recently become effective in aluminum prices. This increase should tend to show a profit on our balance sheet. The old prices were so low that we could not operate successfully. We are receiving a great deal of competition from Norway, Swiss and German firms. They are trying to undersell us at every turn of the road and in some cases they are successful."

Shortly after the sailing of Arthur B. Davis, president of the Aluminum Company of America, rumors were circulated that the American producer was about to consumate negotiations abroad to either purchase the plant or take up the output of the Norse Aluminum Company of Norway, the intention being to bring into the United States Norwegian aluminum ingots, roll them into sheets in bond, and export the manufactured product.

This report was generallyc redited in the trade and brought about an active demand for Norwegian and Swiss aluminum ingots, aggregating about 1,200 tons.

New York agents of some British and Swiss aluminum manufacturers late in December and early in January claimed to have made sales of ingots at 24.00c for 99% plus and at 23.00c for 98-99% ingots duty paid delivered to U. S. consumers.

German manufacturers of aluminum cookng utensils and flatware on and after December 10th reduced prices to American importers 20%, but the reduction was scarcely sufficient to permit German manufacturers to compete successfully with American manufacturers as the duty on foreign cooking utensils is 11.00c per pound plus 55% ad valorem.

ALUMINUM, ANTIMONY, SILVER AND STERLING EXCHANGE QUOTATIONS IN DECEMBER

Day	Aluminum	Antimony	Silver — N. Y.	Silver — London.	Sterling Exch.*
1	22.25	6.45	.643/4	32 3/8	$4.52 1/4
2	.....	....	.64 1/2	32 3/16	....
4	22.25	6.45	.645/8	32 3/16	4.53 3/4
5	22.25	6.40	.651/8	32 7/16	4.55
6	22.25	6.40	.653/8	32 3/8	4.56 1/8
7	22.25	6.37 1/2	.643/8	31 7/8	4.56 1/4
8	22.25	6.37 1/2	.641/4	31 13/16	4.56 5/8
9	.....	....	.64 1/2	31 7/8	....
11	22.25	6.37 1/2	.645/8	31 3/16	4.58 1/2
12	22.25	6.37 1/2	.64 1/2	31 7/16	4.62 3/4
13	22.25	6.37 1/2	.64	30 15/16	4.63 3/4
14	22.75	6.37 1/2	.63 1/2	30 15/16	4.63 3/4
15	22.75	6.30	.623/8	30 3/8	4.63 7/8
16	.....	....	.625/8	30 7/16	....
18	22.75	6.30	.627/8	30 1/2	4.64 3/8
19	22.75	6.30	.627/8	30 3/4	4.63 7/8
20	22.75	6.30	.623/4	30 7/8	4.62 3/4
21	22.75	6.30	.63	30 3/4	4.64 1/2
22	22.75	6.30	.627/8	30 5/8	4.64 1/4
23	.....	....	.623/4	Holiday	
25	Christmas				
26	22.75	6.30	.623/4	Holiday	4.64 3/4
27	22.75	6.30	.63 1/2	30 15/16	4.64 5/8
28	22.75	6.30	.643/8	31 3/8	4.64
29	22.75	6.30	.641/4	31 3/8	4.63 5/8
30	.....	....	.64 1/2	31 9/16	....
High ..	23.00	6.50	.651/8	32 7/16	4.64 3/4
Low ..	22.00	6.25	.623/8	30 3/8	4.52 1/4
Aver. ..	22.52	6.35	.645/8	31.36	...

* Rates on damand drafts at 3 P. M. each day.

ALUMINUM PRICES.

Open market quotations on virgin aluminum 98-99% pure, in New York.

	1922.	1921.	1920.	1919.	1918.
Jan. ..	17.74	22.86	32.00	33.10.	37.24
Feb. ..	17.33	24.50	31.83	32.26	37.25
Mar. .	17.52	23.44	31.50	29.81	32.79
April .	18.06	23.25	31.61	30.67	32.10
May ..	17.92	23.06	31.95	32.21 1/2	32.10
June.	17.87 1/2	22.75	32.00	32.83	33.10
July .	17.87 1/2	22.62	32.00	32.57	33.10
Aug. .	17.87 1/2	20.22	32.21 1/2	32.23	33.10
Sept. .	18.26	19.02	31.44	32.50	33.10
Oct. ..	20.51	17.85	29.12 1/2	32.50	33.10
Nov. .	21.66	17.50	27.80	32.50	33.10
Dec. .	22.52	17.50	23.83	32 48	33.10
Av. ..	18.68	21.21	30.61	32.14	33.60

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81 Fulton Street **New York**

Steel and Metal DIGEST

VOL. 13 FEBRUARY, 1923 NO. 2

THE BUSINESS SITUATION

January was a month of rising prices, large trade volume and heavy traffic. Labor was well employed at high wages and industrial plant capacity was utilized to the full extent of man power available. If these conditions create prosperity little more could be desired, but there are modifying influences of importance, some of which have been noted time after time for the last six months.

The most serious drawback to prosperity at home is the high cost of production of manufactured goods. In many lines of industry it is difficult to swap an old dollar for a new one. Here and there a narrow profit is being made and in a few exceptional instances return on capital invested is satisfactory. In the majcrity of instances, however, profits are too low to be comfortable and the prospect for early reduction in costs of manufacture is not encouraging.

Fuel Situation

In some respects the fuel situation is improved. Bituminous coal operators and miners in the central competitive field have harmonized their differences, which means that there will be no strike of the coal miners next April but peace has been obtained by surrender to union miners. Present high wage rates to miners will continue to be paid for another year beginning April 1st, next, which means that the consumer will carry the heavy load that much longer.

The public has had no voice in the matter but has again fallen between two stools. It is well known that there are too many miners and too many mines to meet consumptive requirements but, apparently nothing will be done to rectify conditions in the coal mining industry for at least another year. The Fact-finding Commission filed its report January 15th which declares "that there can be no permanent peace in the coal industry until this underlying cause of instability is removed." This underlying cause is "too many coal miners and too many mines." It is self evident, as the report states that steadier employment must be provided to miners and transportation interests must be assured of coal traffic in a more equitable way.

Effect on Railroad

So long as the railroads are subject to sudden peak loads at the season of the year when crop movement and general merchandise exchange is at the maximum, so long will labor hold the whip-hand over the public. Reform is essental and it will be fortunate for the consumer if corrective measures can be applied within the next eighteen months. As pointed out by the National City Bank, it is quite evident that "something interferes with the free play of natural forces in the coal industry." Were it otherwise, natural forces would have adjusted differences between operators and men and have relieved consumers long since.

The Public.

A long-suffering public, however, may take heart from the fact that the Coal Commission some day, some time, some where will have solved the riddle of the industrial Sphynx permitting justice at last to be done to the consumer as well as to the miner of coal. In the meantime, industry must expect to continue to pay tribute to union labor. The latter is still protected by immigration laws as well as by the extension of the

agreement between miners and coal mine operators.

Some Relief

Some small relief is given to consumers of coal and coke by the very fact that there will be no coal miners' strike in April but freight congestion and railroad embargoes have militated against any important decline in prices of fuel thus far. It is generally conceded, however, that coal and coke will decline substantially in the second quarter of the year if not earlier.

Wages and Commodities

It is pointed out that from 1915 to late in 1920 wages paid to labor advanced more slowly than commodity prices but from late 1920 to the middle of 1921 commodity prices fell much more rapidly than wages while in the last year and a half the adance in wages kept pace with the rise in prices of commodities. Unfortunately for the manufacturer a large part of his profits in 1917 and since has been necessarily shared in large measure with the National Government in the form of taxes. Today wages are as much above commodity prices as they were below them in 1917-1920. In the last month, however, prices have been again advancing alarmingly and there are already rumblings here and there of a demand for higher wages. Both tendencies are unfortunate. The movement may continue upward for a few weeks longer but the reaction is inevitable in the not very distant future.

Raw Materials

The recent appreciation of prices—wholesale or mill prices—has given an opportunity for some profit to middlemen and jobbers who had been forehanded in securing supplies before the upward movement was pronounced, and whose market was quickened by winter weather and freight congestion. In general, however, manufacturers, while working into an improved position, have benefited less than middlemen because obliged to pay higher prices for raw material.

Activity has come to the textile industry as a result of the upward tendency of prices of wool and cotton but the higher prices prevailing for raw material are as nothing compared with labor costs in turning raw products into manufactured goods. The farmers' position, outside of the cotton planters, has not improved very decisively because prices of grain have been unfavorably influenced by the unsettled situation in Europe. Prices of the goods which the farmer buys have advanced more rapidly than the prices of his own products.

Farm Products

News affecting wheat is distinctly bearish recently yet it is evident that crops of grain generally are in strong hands. Export business has fallen to small proportions. Receipts of wheat at primary points so far this season have been 335,000,000 bushels or almost 30,000,000 bushels more than last year. The American Farm Bureau Federation in its most recent letter, predicts higher prices for corn as a result of a relatively smaller supply compared to the preceding season, increased feeding operations and the prospect of liberal export and industrial demand.

Rail Traffic

Freight movement over the western railroads in January showed an increase of about 30% as compared with last year and early returns from other sections indicate an improvement in railroad earnings last month as well as in December 1922. With the exception of several coal roads, railroad earnings continue to reflect distinct improvement compared with 1920 as well as 1921. Although 1920 was a banner year in traffic records, net earnings were low because of the abnormally high operating cost. In 1921 the carriers succeeded in getting back to a more economical operating basis but again gross revenue was relatively low. In 1922 gross earnings held up well in the face of the coal strike and notwithstanding the higher operating cost due to the shopmen's strike —economies instituted kept operating costs well in hand.

Outlook for 1923

Railroad officials are conservative concerning 1923 but generally a fair degree of optimism is entertained. A few prominent railroad men have the temerity to predict a billion dollar record of net earnings during the current year. It is well to keep in mind, however, that the same prediction was made at the beginning of 1922 but the pre-vision was not very clear. It seems fairly certain however, that there will be less trouble among railroad employees this year than in 1922. Railroad executives have taken 1922 lessons to heart and are harmonizing relations between the carriers and their employees.

Rail Earnings

In December last year, recent calculations, based upon earning reports made by more than half of the Class 1 railroads, indicate that the nation's carriers earned between 4% and 5% on the tentative property valuation. The probability is that net earnings were nearer the outside than the inside figure. Net operating income of the carriers last year, it is believed, was between $725,000,000 and $750,000,000. Apparently the carriers are in a better position today than manufacturing industries.

Under the circumstances it is not surprising that conserative feeling is still evident among thoughtful business men. The financial situation is still encouraging notwithstanding the grave fears entertained now and then regarding both political and industrial developments in Central Europe and the Near East. Money is abundant and credit readily available for desirable borrowers.

Steel Industry

January was probably the best month the steel industry experienced from several standpoints, in a period of nearly three years. Production of ingots by the Steel Corporation today is nearly 91% of capacity and the average of plant operations in January was nearly 88%. Buying was active by consumers of rolled products, notably of bars, plates, shapes, for construction of buildings and manufacturing plant extensions; of steel pipe for oil companies and building purposes; of wire products, including mesh, for road construction and of numerous other products.

Railroad equipment manufacturers continued important buyers of bars, plates and shapes as well as of steel castings for car and locomotive construction. Orders for the principal rolled products ranged between 200,000 and 300,000 tons each. Independent steel companies, as well as the Steel Corporation subsidiaries, shared fully in the larger buying. Higher prices were obtained but the advanced level was reached only after the bulk of the business had been placed.

Steel Earnings

There is reason to believe that the first quarter of 1923 may be the best three months period in steel industry since the first quarter of 1921, from the standpoint of earnings but it is too early to make such predictions with confidence. The Corporation failed to earn its common dividend in the last quarter of 1922 as apparently it was obliged to set aside $1,000,000,000 more for depreciation than in the preceding quarter. The salvation of the Corporation, is the heavy surplus earnings in 1917-1920, upon which funds it has been learning to carry it through the last three lean years with equinimity.

Better Outlook

Few independent steel companies have done as well as the Steel Corporation, of course, which means that deficits rather than net revenues have been the harvest of the last year. Even today, although prices have advanced from $4.00 to $20.00 a ton in the last month, steel manufacturers are having difficulty in making fixed charges. The immediate outlook is a little more encouraging than the last year and a half but there is still much to be desired. The steel makers are in their present unenviable situation largely because of the high cost of production due mainly to high wages paid to labor and the difficulties encountered in distribution of the finished products.

Copper

As with steel, so with non-ferrous metals. January was conspicuous for an increased volume of business as compared with the average in 1922. The improved statistical position of copper was reflected in higher prices. The main supporting factor of the copper industry is the havy domestic consumption of both wrought and unwrought copper and brass. The weak point was and is smaller consumption in Europe. A dangerous point is the increasing production in South America. The taking over of the Chile properties by the Anaconda interests militates somewhat against this danger, but nevertheless production is becoming uncomfortably large. It is indicated today that surplus stocks in the hands of producers were increased somewhat in January.

Turning to other industries we find the same general tendency, that is a large volume of business, heavy distribution and rising prices. It is the modifying influences, however, of these desirable conditions which give pause to too enthusiastic congratulation upon the business outlook at home.

British War Debt

Among the most important international developments is the promt ac-

tion of the British Government in agreeing to the American proposal of the funding of the British war debt to the United States. So far as Great Britain is concerned, the matter is concluded. It now remains for Congress to act promptly and this it is being urged to do by President Harding. It seems reasonably sure that Congress will either amend the refunding act or pass other specific legislation authorizing the settlement of the British debt upon the basis agreed to by the British Government and the U. S. Refunding Commission.

Drawbacks

The effect of the encouraging prospect of refunding the British debt is somewhat clouded by other European developments such as the French occupation of the Ruhr and the obstacles being thrown in the way of settlement by the German nation and last, if possibly the least obstacle to international harmony is the virtual breakinig off of the Lausanne conference which threatens renewal of fighting in the Near East.

Future Outlook

Recapitulating business affairs at home and abroad it is evident that January was fertile in important developments both political and economical and while the outlook of domestic affairs generally is somewhat improved, the European horizon is still darkened by industrial and political clouds, lessening the effect of rising prices, large trade volume and heavy traffic at home.

FORMULATING BUSINESS POLICIES

With various disturbing factors of the past few years out of the way and with a period of keen and active competition promised for the next few years, manufacturers and distributers are in position to formulate more definite trade policies, and indeed must do so if they expect to make progress.

We have not had normal times, not even normal conditions, since the outbreak of the great war. In the first few months of the war there was great financial unsettlement and depressed business. Then there was buying of the active and feverish kind that characterizes war time, entirely abnormal. Then, when the United States entered the war business had to be conducted purely on the basis that the nation was at war. After the Armistice there was the question whether we would deflate, or the inflation would cause higher prices. As there was a difference of opinion on the subject we proceeded to do both, almost at the same time. We had a rapid succession of labor shortage and inefficiency, unemployment and then labor shortage again, but without so much inefficiency. Incidentally we had the great coal strike of 1922, sufficient to create all by itself a tremendous unsettlement in peaceful industrial and commercial times such as we had before the war.

One does not betray an unreasonably optimistic temperament in concluding that we have now left such unsettling conditions largely behind us. We have no problem of unemployment and we should be level-headed enough not to take too seriously this talk of "labor shortage." We had better assume that men will be sensible enough to recognize that the labor supply we have is the labor supply we have and that business will simply have to get along with it, getting done the work that can be done and not dreaming about rainbows. Coal conditions are not settled right but it looks as if they are at any rate settled for another year.

Commodity prices are not as stable as they were before the war, perhaps, but they are much less unstable than they have been since the Armistice. They cannot go to smash, and they cannot skyrocket, for buyers are in no mood to tolerate such an operation again.

The manufacturer or distributor has had to be an opportunist for several years past, eight or nine years indeed, but he is now in position to look ahead and outline and adopt definite policies. He seems to be fairly well assured of two things, relatively stable conditions as to supplies of materials and physical ability to operate on the one hand, and on the other hand rather active and eventually very keen competition. Policies should be outlined accordingly. One must have trade and to have trade one must render service. Buyers are going to appreciate service and have had ample experience in the past few years to recognize its value. Costs must be pared wherever possible. In manufacturing, labor saving devices are worth more than ever. They cost more than before the war, but the amount they save is increased still more.

THE OBSERVER'S CORNER

Some of the talk on business matters one encounters these days is not without its humorous aspect. There is some reluctance on the part of many business men to admit that there is anything funny connected with business, which they regard with profound respect if not actual reverence. The most soberly minded business men are however not necessarily the most successful. Possession and excerise of a sense of humor is not really an insurmountable barrier to success.

One of the humorous things in business life today is the seriousness with which many men urge that there should be a curb to opening of new coal mines. There are too many already, resulting in the public having to pay too high prices for coal, on occount of the extra overhead expense the public must carry. To make it still more interesting it is these men in many cases who object to government control of industry and view with alarm the thought that the Government might undertake to fix coal prices.

In other words, the more capacity to produce you have in an industry, the more potential competition, the more you are going to have to pay for the product of that industry. Yet we are all willing to admit, vociferously sometimes, that we live under competitive system. What we say is that it is a case of demand and supply, but when we write the rule for the coal industry we write it that the greater the supply the higher the price. Our hope of a lower price lies in reducing the potential supply. To adopt a policy of limiting the opening of new coal mines to forestall the necessity of governmental fixing of coal prices would be futile, for one thing would lead to another. Some exceptions would have to be made, some new coal mining development would have to be permitted, and the question of permissibility would depend on the relation between cost of producing coal at the mine and the commercial value of the coal.

One of our difficulties today, one that itself has rather a humorous aspect, is that we do not know whether we want more competition or less competition in business. About all that is clear is that the great majority of men usually have a complaint one way or the other on the subject. We have no very precise views on the subject either in the abstract or in the concrete.

As to the abstract, it can well be argued that competition is a biological necessity. We are only beginning now to pay any serious attention to how the human mind works, yet a little reflection will bring almost anyone to the conclusion that the events of the world are made by men, not by materials. So are markets. The latest way to write history is to consider it a succession of overlapping biographies. A rather respectable and quite starling argument for the side that we have fallen far behindhand in studying the human mind is made, that Aristotle's science was exploded centuries ago and has since been taken as something to laugh at, while much of his philosophy is today regarded with great respect. Must we assume, it is asked, that Aristotle was a fool in science but a man of transcendant ability in philosophy, or may we suspect that the world has made great progress in science and very little in philosophy?

As to the working of the human mind, of which we have learned so little, we have lately become convinced that the human mind has been several hundred thousand years in the making and inherits instincts and inclinations from remote ancestry. All through these hundreds of thousands of years there has been competition, the survival of the fittest. Hence competition is a biological necessity. Or, one may argue the other way, that the system has not been completely admirable in that the survivors have not been supremely happy while it was distinctly rough on those who did not survive. The stronger animals were not necessarily the most useful. We are more benefited to-day by cows than we should be by lions.

In the abstract, therefore, quite an argument can be developed as to whether competition is a good thing or a bad thing. It is not surprising, though it is sometimes a trifle amusing, that we say things one moment in favor of competition and other things the next moment that are rather against the principle of competition.

In the concrete we are just as interesting. In the Bethlehem-Lackawanna-

Midvale merger, for instance, the division of opinion as to the desirability of the deal has been chiefly that one group of men say it would be a good thing because it would reduce production costs and give cheaper steel to the public while another group asserts that there is danger that Mr. Schwab and Judge Gary might get to understand each other's winks so well, or develop so many different ways of saying "good morning" to each other, that the steel market would be controlled and the public would have to pay more for its steel.

In all the talk about Bethlehem-Lackawanna-Midvale, who has said that there is danger of a battle of the giants, a destructive competition between the two? Now, candidly, it is no small thing to find a market for several tens of millions of tons of steel every year and it is rather far from certain that these two big producers would treat their customers very rough. On the other hand it ought not to be difficult for anyone to imagine the harm that would be done if these two giants got into vigorous competition with each other. The Observer may mention that he himself does not need to exercise his imagination on this subject, since he lived through the eighteen-nineties and draws upon his memory rather than on his imagination for a picture of what competition may do. The seriousness with which men discuss whether the merger would result in steel costing a little less or a little more and ignore the dangers of competition is just a trifle amusing.

There is another thing that seems to the Observer somewhat curious, and that is that in the minds of most men competition that would put out of business a concern built up and owned by its officers is considered very bad, virtually shameful, but competition that would injure or wreck a large concern with stock widely held would not be nearly so objectionable. Now, where is the steel producing concern in which the officers and directors have invested fortunes made elsewhere? With what may be called the privately owned concerns it would be very largely a case of the business giveth and the business taketh away—blessed be the name of business. That is, there was a good bit of fun in it while it lasted. With the publicly owned concerns, on the other hand, at one time or another much money is invested in the shares that was earned elsewhere, earned by great effort perhaps, and to take that value away, no matter how widely spread is the ownership, is a different thing altogether. The public sympathy in this matter is with the privately owned concern rather than the publicly owned concern. If the question had to be faced, the rejoinder would be that it would not matter much because in the latter case the loss would be "distributed," which is just about as reasonable as to urge that cutting an inch off the tail of each of a dozen dogs is not nearly as bad as cutting a one-foot tail off one dog.

Copper Recovered from Scrap Metal—Bearing out the adage that "old copper never dies," it is stated that in the United States alone, during the five years 1917 to 1921, about 1,400,000 tons of copper was recovered from scrap metal, including the copper content of remelted brass. The war produced great quantities of copper-bearing scrap, particularly brass, and this has been a large factor in the European as well as the American copper market. Quantities were imported into this country, augmenting the surplus from our own war activities. That this old metal has been pretty well disposed of accounts to no small extent for the improved position of copper at the beginning of 1923.—**Iron Age.**

Canada's Industrial Advance—Progress in agricultural and industrial development in Canada over a period of years is shown by statistics which have been recently prepared by the Department of Colonization and Development of the Canadian Pacific Railway. The figures on the whole reveal increases in crop production and greatly improved business conditions. Heavier yields of wheat and oats were reported in 1920 than at any time for four years previous, and in the case of each crop a larger percentage was merchantable. Mineral production in 1920 showed a heavy advance over 1919 and was almost double that of 1910. A census of manufactures, both capital and products, revealed that in 1918 the value of products had almost trebled over the figures of 1910, while the total of capital stocks had increased in about the same proportion.—**American Industries.**

WAITING FOR THE NEXT DEPRESSION

There is a beautiful theory, often proposed but rarely followed, except in skyscrapers, that when business is above normal in volume of activity some of the work should be postponed to the next period of depression and be carried out then. Thereby the force of the depression would be lessened.

This is rather an interesting subject. First, we should ask ourselves whether the theory really is not followed. Perhaps it is followed to an extent, but not enough. This is rather a difficult question. There is high authority for the statement that of all the hotel and office skyscrapers in the United States, 85% have been contracted for in periods of depression. The man in the street, on the other hand, has developed a law that when the voice of the pneumatic riveter is heard in the land the land is in a period of "prosperity."

From this very contradiction, however, something can be learned. First, it should be observed that from the activity of 1899 to the activity of 1923 is 24 years and this is the seventh period since 1899, so that the average duration from crest to crest or trough to trough is about 3½ years. In the long run there is more activity than depression, so that depression takes less than half of the 3½ years and thus does not give time to decide upon, to plan, to contract for and to complete a skyscraper. That is, there is a chance for both men to be right, the man who says that skyscrapers are contracted for in times of depression and the man who says that the building of skyscrapers is an invariable accompaniment of business activity. But if there is a third man, saying that the arrival of "prosperity" brought the inception of the building project, he is likely to be wrong. The contract was let as an anticipation of the prosperity, not as a sequel to it.

We may conclude that the theory is followed to an extent, of buying or contracting for building when things are cheap. It is not followed fully however, and that is a statement susceptible of absolute and clear proof, for if it were followed fully all our periods of depression would have been periods of great activity and all our periods of activity would have been periods of depression.

For us to have such alternations of an unemployment problem and a labor scarcity problem there must be some great reasons. There are, and many of them are so simple and well understood that it would be taking unwarranted liberties with the reader's time merely to mention them. One will be stated, although even casual reference to the subject is offensive to the sense in many men's minds of what is proper. It is a tabu, and stranger indeed than the tabus of primitive men, for we have means of knowing better. Primitive man had no way of exploding his tabus, whereas we could explode our tabu of not talking of depression when activity is present by harking back to the conversations and writings of about a year earlier—or say a year and a half, which is approximately the average time—about how there is a "business cycle" with periods of above normal and below normal. The "business cycle," it will be recalled, is something we use as a topic of conversation, almost to the exclusion of the weather, when business is in one of its recurrent troughs.

In a period of activity, one who talks of depression is improper, not to be recognized in polite society. He is called a "calamity howler" or a "pessimist" and epithets may even be applied to him. Even these present remarks may be objected to by some, who have definite opinions of what the American Metal Market should say and should not say. The thing has happened before.

However, in a period of particular activity, with labor shortage and high priced commodities, a great many men unite in a conspiracy to convince other men that the activity is going to last indefinitely, that there is no use in waiting unless one wants to pay still higher prices. When the turn comes, as it always does, few sellers and few workmen are willing to liquidate. The disposition is to hold out. The man who cuts prices to keep his customers buying is likely to be ostracised.

Right here, in point of fact, we have arrived at one chief point in the answer to the question why more people do not go lightly in expenditures when times are particularly active and spend when there is depression. Those to whom they would like to pay money refuse to

make the concessions that are plainly dictated by the signs of the times. Sellers of commodities endeavor to hold their old prices. Workmen refuse to work harder, preferring to indulge in strikes. When, in any of the depressions of the past quarter century, were prices the lowest and workmen the most efficient? Not during or throughout the depression but just at the end of the depression.

Another outcome of this tabu of depression talk when there is activity is that men, having been led to believe that the activity was unending, feel completely lost when it does end. Everything has gone wrong and can never be right again. They feel they have lost their grip—simply because they refused to face squarely that periods of depression occur between periods of activity—and when a man has lost his grip he cannot take hold.

THE LABOR SHORTAGE -- ITS VOLUME AND MEANS OF RELIEF

Frank L. Glynn, managing director of the New York Building Congress, takes up many matters of interest in the **Engineering News-Record**, treating on the wastes of seasonal employment and the apprenticeship question along industrial lines. He says in part:

The fact that Europe has ceased to be the training school for the United States has brought about an acute situation in the building industry which is being reflected in all the basic industries contributing to a finished structure from the mining of the coal to the manufacture of hardware, tile, glass, electric fixtures, heating apparatus and the hundred and one necessities upon which a contractor is dependent.

This situation is due to the neglect on the part of the building industry to perpetuate itself by providing means for training skilled labor. It is particularly unfortunate that this neglect has only begun to be realized at a time when the demand for building is at its highest peak, with indications that this peak will be maintained for some time to come provided there is enough labor to do the building. Nor has the responsibility for the discouragement of building trade apprentices rested all with the unions. Employers in the past have put obstacles in the way of apprentices getting ahead. As long as young men were apprentices they got apprentice wages. The more they learned the more would be the wages and it was not to the interest of the employer to enlarge his payroll.

The Wisconsin Law

The only apprenticeship law now in force in the United States is in Wisconsin, which, for more than six years, has provided for apprenticeship contracts under the administration of the State Industrial Commission. These contracts embody the signatures of the parties to the contract, the date of beginning apprenticeship, the period of its duration, the processes or particulars of the trades to be taught and practiced, the wages to be paid and any other special arrangements customary in the trade.

The law requires, furthermore, that the apprentice shall attend an apprenticeship school for supplementary trade instruction five hours per week on the employer's time where such schools are established. It is required by law that such schools shall be established in all cities of more than 5,000 and may be established in smaller cities. These schools are supported entirely by public funds. They are designed to give academic trade instruction to the boy as well as to afford him trade experience in the shop.

Penalties are provided for violation of the contract which will involve a fine of from $1.00 to $100.00 for either party; in addition, the regular penalties follow for the violation of the orders of the Industrial Commission which have the same standing as any other orders of that commission.

But despite the slowness of the building industry throughout the country to arise to the needs of this situation, it has now come to realize the necessity for far reaching and fundamental changes. The need of more apprentices in the building trades has become so obvious that, in many cities throughout the country, there are being worked out definite programs for the training of mechanics. This plan is well under way in New York, Boston, Chicago, San Francisco, Philadelphia, Cleveland and Portland, Ore., and is in process of development in Detroit and St. Louis.

TOPICAL TALKS ON IRON

CXVII - Scrap in Steel Making

The history of the basic open-hearth steel industry, from the commercial aspect, is rather interesting. The process is essentially one to permit the use of pig iron containing more phosphorus than is permissible in steel. The Bessemer process used in the United States is the acid Bessemer process and does not eliminate phosphorus, hence "Bessemer pig iron" is pig iron that contains no more phosphorus than is permissible in Bessemer steel, the limit being one-tenth of one per cent. Neither does the acid open-hearth process eliminate phosphorus. The essense of the basic open-hearth process is the reduction of phosphorus by the addition of lime, hence the basic lining, as lime would attack an acid lining. There is nothing acidulous, of course, about acid steel or alkaline about basic steel. The silicon and carbon are removed by combustion, largely by oxygen supplied in iron ore added to the bath.

With its facility for eliminating impurities, the basic open-hearth steel making process invited the use of iron and steel scrap of various character, largely unknown. It was in 1897 that the output exceeded one million tons. Two years later the two million ton line was passed and three years later, in 1902, the four million ton line.

Two fears promptly arose. The first was that basic open-hearth steel would not be as good as acid open-hearth, and engineers began to specify against it. The manufacturers had to do two things, first, to show the engineers that the steel was not as bad as they thought and second, to make it better.

The second fear came later, that there would not be enough scrap to support a continuance of the growth of the industry. At first it was an easy matter, for until the production of basic open-hearth steel exceeded 10,000,000 tons a year there was much more Bessemer steel made, and the scrap naturally arising furnished a good supply. There were hard feelings in some Bessemer steel departments when the management was required to save the scrap and turn it over to the open-hearth department. Previously it had been used as a convenience. If there happened to be too much silicon in the Bessemer pig iron, making the blow hot it was cooled with scrap. The annoyance was passed to the blast furnace superintendent, who was required to make his pig iron suit the converter. There were some hard feelings in turn in the minds of blast furnace superintendents, but they soon got used to the new order of things.

In several instances a basic open-hearth steel department was added to a regular Bessemer steel plant for the particular purpose of utilizing the scrap to advantage. An open-hearth capacity about one-half the Bessemer capacity was considered about the right proportion to balance.

The maximum output of Bessemer steel was reached in 1906, and it was seen that the tonnage of the process would decline, while the basic open-hearth process was destined to increase. Naturally the fear arose that there would not be enough scrap for the basic open-hearth, at least to conduct it economically. The difference would have to be made up by old material or by modifying the process. Various modifications were proposed, the most prominent being the duplex process and the Talbot process. Essentially they are processes to make basic open-hearth steel economically without the use of much scrap. In years when there was heavy pressure for steel more than 10% of all the basic open-hearth steel has been made by duplexing. The processes would be used more extensively still if there were less scrap to be had.

The fear that there would not be enough scrap to support the continued growth of the regular basic open-hearth process has proved unfounded. There is not enough scrap to admit of the proportions of 80% scrap and 20% pig iron attempted by some steel makers in the early years, but steel thus made would be unlikely to be of fair quality in any event.

It has been very easy for the average person to misunderstand the case, by one overlooking the "works scrap" and assuming that if steel is made from half pig and half scrap that the latter is old

material. For years the statistics have shown that the output of what is reported as "finished rolled steel," including rails, shapes, plates, sheets, rods, bars, skelp, etc., runs just about 76% of the output of ingots. The former are the commercial products, while "production of ingots" is merely the record of the ingot scale. Some of the steel simply passes over the ingot scale twice.

Until a very few years ago, roughly speaking up to the beginning of the war, an analysis most any year would show that the production of commercial steel, that is, steel in its various forms actually sold by mills and shipped out of mills, approximately equaled the tonnage of pig iron-Bessemer, basis, spiegeleisen and ferromanganese—used in making steel. The scrap produced in the mill was not a loss, as it went into the open-hearth furnace and went out as merchantable steel. There were, however, two losses, first of the impurities removed from pig iron, 5% roughly speaking, and the scale or iron oxide formed in rolling, which went into the blast furnace for smelting. In those days the old material used was approximately equal to those losses.

Now the case is quite different. The quality of old material scrap is large. A close guess can be made of the tonnage in 1922. It is safe to estimate, the official statistics for 1922 not being compiled at this writing, that 1922 production was 27,000,000 tons in pig iron, 34,000,000 tons in steel ingots and 1,000,000 tons in steel castings. In 1920 79% of the total pig iron was Bessemer, basic, spiegeleisen and ferromanganese. Using 80% to be on the safe side, in 1922 about 21,600,000 tons of pig iron and manganese alloy went to steel works, but 5% should be deducted for carbon, silicon and phosphorus, leaving 20,500,000 tons of available material. Finished rolled steel at 76% of the 34,000,000 tons of ingots would be 25,840,000 tons, or 8,160,000 tons loss. A part of this was permanent loss to the mill, in scale, but the steel casting works produced some scrap, while there was also some scrap produced after the "finished rolled steel" that is reported for statistical purposes was made, this scrap including that made in drawing wire, as rods are reported for the statistics, in making pipe, since skelp is reported for the statistics, and so on. Altogether one may set the works scrap at about 8,000,000 tons, which added to the 20,500,000 tons of material available in the pig iron makes 28,500,000 tons. The ingots and castings totaled 35,000,000 tons, so that there is a difference of 6,500,000 tons. This conclusion is probably right within a fraction of a million tons. Thus one can say that in 1922 the steel works, including steel foundries, used between 6,000,000 and 7,000,000 tons of scrap which they did not produce themselves. Some of that is industrial scrap, produced at car, locomotive, fabricating and various other shops and some of it is old material, steel or iron that has gone through its period of service. The automobile has become an interesting factor in this matter. There used to be guesses as to the "average" length of time steel stayed in service before coming back to be reworked. Of course some came back in a short time, some in a long time and some never came back. But the favorite guesses were generally 15 to 20 years as the "average." Now comes the automobile, for which careful studies have given an average life of about six years. The proportion of steel in automobiles to total steel made of course varies from time to time, but 55% is not a bad working factor. Now, in a way 5% coming back in six years is as important as 15% coming back in 18 years, so that the automobile as a scrap producer is going to be an important factor. Automobile scrap is relatively new and has not worn a regular and smooth trade channel. The automobile wreckers are doing most of the preparing themselves and as they are not well equipped with shears and depend much on acetylene cutting the preparation is not very good from the consumer's standpoint. Not much of the steel passes through the yards of regular dealers.. Eventually, as the flow increases, one of two things must occur.. Either the steel will go to regular dealers' yards for proper preparation or the wreckers will have to install complete facilities themselves. As that would be expensive and the interest of the wreckers is not chiefly in the large steel parts, the probability is that frames and axles, or perhaps the stripped chassis, will go through the yards of regular scrap dealers. At a rough guess there is going to be about a million tons a year of this material.

TECHNICAL AND COMMERCIAL ABSTRACTS

Who Should Own the Coal Mines?—F. R. Low, writing in Power says: "We made a false start when we allowed the discoverer of a natural resource to appropriate it for himself and his heirs and assigns to have and to hold for all time. We are having borne in upon us very convincingly what a stupendous mistake it was in the case of coal. The manufacture, transportation and distribution of most of the essentials of modern life depend upon coal, and the nation's supply is in the private ownership of a group that has demonstrated its utter inability or unwillingness to develop that supply with a dependableness that will stabilize industry and assure the comfort and well-being of the people, at a price commensurate with the service rendered. Even if the nation should be obliged to buy back the coal mines which it has allowed to be taken, and to pay $4,500,000,000 for them and the improvements that have been put into them, and the claims with which they have been charged, tis would make an annual interest and sinking fund charge or less than half a dollar per ton of our usual output."

IRON AND STEEL.

Research on the Corrosion of Steel Pipe—The National Tube Company, of Pittsburgh, has announced the establishment of an Industrial Fellowship in the Mellon Institute of Industrial Research of the University of Pittsburgh. This Industrial Fellowship is engaged in a systematic study of practical methods for the prevention of corrosion in hot water supply systems. It is also giving attention to the classification of waters of various chemical composition, with respect to their relative corrosive action upon iron and steel, particularly in the form of pipe lines, boiler economizers, tubes, etc. The present incumbent of the Industrial Fellowship is Clifford R. Texter, who for the past several years has been carrying out research on the corrosion of iron and steel, where not exposed directly to the atmosphere.—**Blast Furnace and Steel Plant.**

Alloys Growing in Importance—An impressive list of alloys, principally non-ferrous, has been made public by the American Society for Testing Materials as part of the work of one of its committees. That they number about 1,500, some with only slight variations in composition, is a revelation. The success of the comparatively recent attempts to make corrosion and heat-resisting alloys appears from the fact that these already number about 125, and several of the new ones are not mentioned. Adding the large number of alloy steels to this list raises the question at once whether we are not coming rapidly into the alloy age. Many of the great strides in recent years, as in the automobile and airplane industries, are due primarily to alloys. There have been distinct changes in some industrial operations, particularly chemical, from the use of alloys. Many of these pronounced developments would not have been possible except for the perfection of the electric furnace and the art of heat treatment. The high temperature units in particular have made possible many special alloys, and only through heat treatment have a large number of steel and non-ferrous alloys been brought to their highest usefulness.—**Iron Age.**

Titaniferous Iron Ores—Many requests have come to the Bureau of Mines for information as to the possible commercial employment of titaniferous iron ores. Particularly has interest been excited by the possibility of magnetic concentration of the titaniferous iron ores in the Lake Superior region, and many loose estimates, up to billions of tons, have been made of the titaniferous magnetites available in Lake and Cook Counties, Minnesota. It should be stated that in general the high-grade deposits are too small and the large deposits are too lean to work. In order to utilize the large deposits magnetic concentration would be necessary, but the nature of the material in them is such as not to promise satisfactory results. With reference to the direct smelting of titaniferous iron ores in the blast furnace, it has been shown definitely that these ores can be smelted readily for the production of pig iron. However, blast furnace operators are generally pre-

judiced against titaniferous ores, and while this prejudice is not reasonable, nor based on reliable data, nevertheless it exists.—**Blast Furnace and Steel Plant.**

Loss in Melting Reduced—In stating that the substitution of electric furnaces for the crucible and oil-fired types in the brass-melting industry would bring tremendous economies, the United States Bureau of Mines estimates that the war expenses of this country would have been reduced more than $20,000,000 if all the brass made in the country in 1917 and 1918 had been melted electrically. In old style furnaces the loss of zinc through evaporation is as high as 6% in making brass castings and 10% in making wrought brass. The electric furnace is said to reduce these losses to a negligible quantity.—**Iron Trade Review.**

New Steel Making Process—An interesting new steel making process has been put into successful operation at the works of Messrs. Edgar Allen & Company, Ltd., Sheffield, England, which promises a great revolution in electric steel melting in the near future. They have installed in the works one 10-ton and one 3½-ton Stobie electric steel melting furnaces which are being worked together as a single unit under the Stobie patent duplex electric process. By this means scrap steel is electrically melted and refined by oxidation in a continuous manner in the large primary furnace, and a third or more of the molten bath is transferred down a shoot at short intervals to the small secondary furnace for finishing. The advantages of the process are both electrical and metallurgical. Electrically, the load factor is greatly increased by the continuous working, and the power factor is much improved by the maintenance mainly of molten baths. Fluctuations of current are also less marked and of shorter duration. Metallurgically, the main advantage is the frequent supplies of small quantities of steel, of varying compositions if required, at the low cost of operating plant of large output. For ingot or foundry work this advance in practice is of considerable interest.—**Bast Furnace and Steel Plant.**

ABROAD.

Market For Iron and Steel in Brazil—The American position is very strong in the Brazilian market for sheets, says Commercial Attache Schurz, and it is good in the bar and wire market, although the demand is very weak at present. Competition from Belgium and Germany is keen, and England is becoming more and more a factor in the trade. Belgian and German manufacturers are very strong in the rail market.—**Blast Furnace and Steel Plant.**

Coke Bar to China's Iron Industry—"Steel makers and others who have formed an opinon from frequent reports that China offers good opportunites for the economic production of iron and steel will do well to read the article written for this issue by the United States Commissioner stationed at Shanghai, "says the **Iron Trade Review.** "He not only describes conditions as they actually exist, but he interprets the iron and steel situation in the Far East from the standpoint of American practice. The most important conclusions to be drawn from the commissioner's analysis are that Chinese pig iron cannot be made under present conditions for less than $33.90 per ton. Steel rails conforming to British specifications can pe made for about $71.00 per ton, which compares with $50.00, c.i.f. Shanghai, the price of imported American rails. These excessive costs are caused by the high price of coke, amounting to $14.00 per ton at the stock house, or $18.60 per ton of pig iron. Other contributing factors are the inefficiency of blast furnaces and open hearths, some of which are obsolete, and the lack of proper facilities in the rolling departments. The quality and quantity of iron ore is satisfactory, the supply of limestone is fair, and in the main the cost of handling these materials is not excessive. Steel scrap for the open hearth, however, is scarce, and the high proportion of pig iron charged is a disadvantage. Refractories are of poor quality, necessitating frequent interruptions to operations."

Iron and Steel in South Africa—"An interesting move has been made lately in the interests of a well-founded iron and steel industry in South Africa," says **Iron and Steel of Canada.** "It embodies so much that is sound and far-sighted in its planning, and involves aid from the public purse in such a rational way, that

a review of its provisions may well repay us Canadians, who have made rather a hash of our own attempts along similar lines. South Africa is well provided with metallurgical coal of fair quality, in conjunction with good deposits of iron ore, centrally located within her territory in the Transvaal and the Orange River Colony. The home market is large enough to absorb the product of a blast furnace and of stee mills of moderate size. The prospective market lends color to the belief that the initial iron and steel works, of minimum proportions, will assume very important dimensions in the in the long run. It has indeed been hinted by some students of the subject that South Africa may eventually assume a leading part in the word's iron and steel industry. In order to attract capital to this new field, the government of South Africa has considered it expedient to offer a bonus for the production of iron and steel. This is in the form of a bounty, which it is expected will be at rate of 17s 6d per to in the first three years, 15s per ton for the next three years, and then an annual reduction of 2s 6d per ton until the bounty stops."

America to Get German Trade—"Occupation of the Ruhr by the French and the necessary disturbance to the administration of its mining and matallurgical industries will temporarily, at least, promote the iron and steel trade of other countries, no matter what its ultimate effect in world economic relations may be," says Luther Becker in the **Iron Trade Review**. After recounting the situation in other countries by reason of the French invasion, he says: "Any disturbance, then of the activities of the steel mills of Germany leaves the United States, Great Britain and Belgium, insofar as their limited steel making capacity will allow, to fill in the vacuums that will be created. Even assuming that no disturbances take place and that no friction arises between the German manufacturers and the French, the very uncertainties of the situation will reflect upon business which otherwise might go to Germany. The reduction of German competition and the return of profitable export prices will open up a larger field for future business."

The Engineer Arrives in British Politics—A compilation of the occupations of members of the new British House of Commons contains the welcome if surprising information that among them are 20 engineers. Their opportunities for shaping legislation according to engineering standards, as green members of a chamber where experience and priority go for everything and untried ability is at a discount, would be small. In Great Britain, with the House divided between four quarreling factions and with parliament's control over public works in all parts of the country, 20 resolute and united men should be able to accomplish something to infuse efficiency, economy and energy into governmental enterprises where these qualities are lacking, and to maintain them where they exist.—**Electrical World.**

Conditions Abroad—"Looking first at fundamental conditions, we find Western Europe tending toward stability," says the **Engineering News-Record.** "Fear has given way to confidence, and during the last 12 months production has increased remarkably, both in industries and in agriculture. Turning from these fundamental conditions, however, to the machinery of exchange and national finance, we find the prospect far from encouraging. Three evils are notorious: Currencies are inflated, exchanges fluctuate violently, and national budgets are still woefully unbalanced. Great Britain is making unquestioned progress toward stability. Italy's feet are on the road, but Germany still flounders impotently. France suffers from her reliance upon reparations, which are the evil genius of the situation. It is obvious that however much the European may need our goods, and however industriously he may labor to attain them, he is under a handicap when he must trade in the international market with a depreciated and unstable currency."

World's Largest Testing Machine—"The largest testing machine in the world, which has been in use for several years at the branch laboratory in Pittsburgh, has recently been moved to the main laboratory of the Bureau of Standards, in Chevy Chace, a suburb of Washington," says the **Iron Age.** "The ma-

chine has been erected to continue work on the specimens for the towers of the Delaware river bridge now under construction at Philadelphia. After that it will be used on the remainder of 72 steel columns which are being tested at Pittsburgh. It has recently been used for tests on 45 samples of brick walls laid in different ways and with different kinds of mortar. The machine has two massive heads, one set in a concrete foundation beneath the laboratory floor, the other supported on four steel screws, each over a foot in diameter, and two stories high. The upper head may be set at any height by turning the nuts on the screws by means of an electric motor. It is believed that by careful experimental work a method of design can be found which will allow the strength of steel columns for bridges and buildings to be calculated before they are built. This will be of great benefit to everyone using buildings, as it will be possible to make them safer and at the same time cheaper."

Europe Cannot Compete in Quality of Goods—Competition from abroad, especially Europe, is a matter to be kept under close observation. Agents will write frantic letters regarding the competition from Central Europe, letters that are apt to cast a gloom over the American exporter until samples of the competitive article arrive. But once the actual piece is before the agent, the reply giving counter arguments, encouragement and sales, help is easy. The European article cannot compete in quality when it does in price. There is a market for dollar watches and for fifty-dollar ones. The same is true of all lines, and one group does not even seriously infringe upon another. There is, however, another form of European competition, less obvious but more insidious. It is the indirect type. As often mentioned in export papers, one frequently meets among even our biggest houses cases where the trouble is suddenly uncovered. The trouble consists of the granting of agency or representation rights to a strong foreign house in a given territory, where the lack of honor among the natives makes a native agent a doubtful proposition and where no strong American house is located.—**American Machinist.**

Power Factor and the Consumer—"One of the broadest fields for economic engineering is to be found in connection with power-factor improvement," says the **Electrical World.** "Each year there is a wider recognition of the necessity for establishing standards limiting the amount of reactive power to be supplied by the central station. In the relation between consumer and utility the final word in power-factor correction rests with the consumer. The small user of power is in general the greatest offender, and the reason for this is obvious. Limitations exist in the type of equipment he can utilize in his business, involving questions of speed, size and number of motors, etc. This class of consumer rarely selects his own equipment, but he relies on machinery or motor salesmen, his contractor or the power sales office. With changes in type or amount of production his power demands may change so that a correctly designed installation at the start yields a low power factor under the new conditions. Surveys made by some of the larger companies indicate the necessity of periodic power-service tests if the best interests of the consumer are to be conserved. There is no sovereign remedy for power-factor troubles, and its correction is a real engineering question, and each case must be handled with due consideration of all the economic features which are involved."

Is Large Furnace Volume Necessary?—F. W. Dean, writing in **Power,** says: "I was much interested in the discussion of marine boilers and furnace volumes that took place at a recent meeting of an engineering society, at which the views expressed by some of the speakers would seem to make the furnace volumes that are used at the present time appear ridiculous. The idea that a hot surface like that of incandescent brick is necessary for good combustion is disproved by what the Scotch boiler does. The fact of the matter is that if air in the right quantity is admitted to combustible gases at the right point combustion will take place immediately, and further volume does no good. It has been demonstrated by tests, conducted on Scotch boilers, that air admitted at the bridge wall would convert CO of 15% from a point 16 inches in front of the

bridge wall to 15% CO-2 16 inches back of the bridge wall. After that was done nothing more was necessary and the furnace volume above did no good. Of course that volume had to exist in order to furnish a tube plate for the tubes. It is not generally realized what a good thng horizontal travel of gas is, for gases that have an excess of combustible in one part of the furnace get mixed up with gases having excess of air in other parts, and the best combustion then takes place. In the case of the transversely baffled water-tube boiler, where the gases all go up in approximately parallel streams, there is little chance of the good and bad gases getting together."

The Need of Apprentices—The return of business in the machinery-building industries has brought out rather strongly the difficulty of securing men with sufficient training to be satisfactory. There is also a tendency to wonder where all the men have gone who manned our shops during the war. There are probably two answers to this question. One, that many who qualified on the single operation, or special jobs, of huge war production, are unsatisfactory for the work in the average machine shop. The other, that the war wages of ten to 20 dollars per to attracted men to whom the average machine-shop wage has no appeal. This increasing lack of skilled men is causing more manufacturers to consider the establishment of training schools or apprenticeship courses, while those who already have them are planning to increase their capacity and scope. In no other way can the country hope to maintain its supply of mechanics which has helped to make its mechanical supremacy possible.—**American Machinist.**

Motor Deliveries Begin to Require Attention—So gradual has been the improvement in the motor trade since early in 1922 that distributors and consumers have had little idea of the increasing pressure upon factory facilities which has lately begun to be felt in some quarters. The demand for both fractional-horsepower and integral-horse-power motors up to about 50-hp. rating has now attained proportions that warrant more consideration of deliveries on the part of motor dealers in their relations with manufacturers.—**Electrical World.**

RAILROADS.

Railroad Board Ignores New Union—A petition requesting that the United Association of Railway Employes of North America be allowed to supersede the Switchmen's Union of North America on the Michigan Central Railroad, and have the right to negotiate a new contract with the carrier, has been dismissed by the Railroad Labor Board. The United Association of Railway Employes is the organization of the "outlaw" switchmen who went on strike in 1919. Following the collapse of the railway shopmen's strike, an active campaign was commenced by the United Association of Railway Employes of North America to recruit members from among the shopmen and other classes of employes. The refusal of the board to docket the ex parte submission brought before it by the general chairman of the association was based upon the fact that he offered no evidence to prove that his organization represents a majority of the employes in the classes affected. The association claimed to represent yard conductors, yard brakemen and switch tenders. Several similar cases are awaiting action by the board.—**Railway Review.**

The Railroad Outlook for 1923—Frank H. Alfred, president of the Pere Marquette Railroad, writing for the **Railway Review**, says: "All signs point to a large volume of traffic and a better operation of railroads for 1923. The normal yearly increase in tonnage formerly enjoyed over a long period of years has not been dependable during the readjustment period. To what extent traffic formerly moved by rail will be taken over by the automobile is yet an unknown quantity to be ascertained. These two things have kept the railroad managers guessing as to the kind of improvements that should be made. The coming year will be the weather vane guiding our course toward the future needs. Our better operation will be the result of a very material improvement in railroad equipment, which all roads are at this time so busily engaged in making. I expect to see more intelligent and intense supervision inaugurated all along the line of activities. The growth of this country is proof conclusive that railroad managers have a great problem ahead."

(Abstracts Continued on page 86)

COMPARISON OF METAL PRICES

Pig Iron.	Range for 1920. High.	Low.	Range for 1921. High.	Low.	Range for 1922. High.	Low	Closing Jan. 31, 1923.
Bessemer, valley	48.50	35.00	32.00	20.00	33.50	19.00	27.50
Basic, valley	48.50	33.00	30.00	18.00	30.50	17.75	25.00
No. 2 foundry, valley	50.00	33.00	33.00	19.50	35.50	18.75	27.00
No. 2X fdy. Philadelphia	52.51	33.79	33.79	19.84	34.76	21.34	29.76
No. 2 foundry, Cleveland	50.56	33.40	33.56	20.56	35.50	19.56	28.00
No. 2X foundry, Buffalo	51.25	31.25	31.25	19.00	34.25	19.50	26.75
No. 2 foundry, Chicago	46.00	33.00	33.00	18.00	33.00	18.50	28.50
No. 2 Southern, Birm.	42.00	36.00	34.00	16.50	28.00	15.00	24.00
Scrap Iron and Steel							
Melting steel, Pittsburgh	30.00	14.00	17.00	12.75	22.00	14.00	22.50
Heavy steel scrap, Phila.	27.00	14.50	16.00	10.00	19.00	11.00	21.50
Heavy melting steel, Chi.	27.00	15.50	16.50	10.00	19.00	11.00	19.25
No. 1 R.R. wrought, Pitts.	34.00	16.00	17.00	11.00	20.00	11.50	20.50
No. 1 cast, Pittsburgh	43.00	19.00	22.50	15.00	25.00	16.00	22.75
Iron and Steel Products							
Bessemer rails, mill	55.00	45.00	45.00	40.00	43.00	40.00	43.00
Iron bars, Pittsburgh	4.75	3.06	3.06	1.85	2.55	1.80	2.47
Iron bars, Philadelphia	4.85	3.35	3.85	1.80	2.58	1.70	2.42
Steel bars, Pittsburgh	4.00	2.35	2.35	1.50	2.25	1.35	2.10
Tank plate, Pittsburgh	4.50	2.65	2.65	1.50	2.50	1.35	2.10
Structural shapes, Pitts.	3.25	2.45	2.45	1.50	2.25	1.35	2.10
Grooved steel skelp, Pitts.	3.60	2.65	2.45	1.50	2.10	1.40	2.10
Black sheets, Pittsburgh.	8.00	4.35	4.35	2.75	3.75	3.00	3.35
Galvanized sheets, Pittsb.	10.00	5.70	5.70	3.75	4.75	4.00	4.35
Tin plate, Pittsburgh	12.00	7.00	7.00	4.75	4.75	4.60	4.75
Wire nails, Pittsburgh	4.50	3.25	3.25	2.50	2.70	2.40	2.80
Steel pipe, Pittsburgh	54%	57½%	57½%	71%	66%	71%	66%
Connellsville Coke at Ovens.							
Prompt furnace	18.00	5.00	5.00	2.75	15.00	3.75	8.00
Prompt foundry	19.00	6.50	7.00	3.75	16.00	3.75	9.25
Metals — New York.							
Straits tin	65.00	32.50	39.00	25.50	39.00	28.75	40.00
Lake Copper	20.50	13.75	14.00	12.00	15.12½	12.75	15.12½
Electrolytic copper	19.50	12.75	13.75	11.50	14.62½	12.50	14.87½
Casting copper	19.25	12.75	13.00	11.25	14.25	12.25	14.50
Sheet copper	29.50	22.50	21.50	19.50	22.25	19.25	22.50
Lead (A. S. & R. Co. price)	9.25	4.75	5.00	4.00	7.25	4.70	8.00
Zinc (spelter)	9.85	6.00	6.10	4.25	7.70	4.82½	8.20
Chinese and Japanese Ant.	11.62½	5.20	6.00	4.45	7.00	4.15	7.12½
Aluminum, 98-99%	32.75	22.00	26.00	17.00	23.00	16.50	22.75
Silver	137	59¼	73⅝	52⅝	73¾	62⅜	64¾
St. Louis.							
Lead *	9.15	4.45	5.05	3.90	7.12½	4.35	8.15
Zinc (spelter)	9.50	5.50	5.60	4.12½	7.35	4.47½	7.10
Sheet zinc (f.o.b. smelter)	12.50	11.50	11.50	8.50	9.50	7.50	9.12½
London.	£	£	£	£	£	£	£
Standard tin prompts	415½	198	210½	148	187⅞	139	184
Standard copper, prompts	122	70½	75½	65¼	66	57⅛	65⅜
Lead	52⅜	21½	26	16½	27	19½	28¼
Zinc (spelter)	63	22½	28¼	23½	39⅛	23⅞	36⅞

* Outside market.

COMPARISON OF SECURITY PRICES

Iron and Industrial Stocks.	Range. 1920. High.	Low.	Range. 1921. High.	Low.	Range. 1922. High.	Low.	Range. 1923. High.	Low.	Closing Jan. 31, 1923.
Allis-Chalmers	53⅞	26½	39¾	28¼	59¾	37¾	48½	45	46
American Can	61¾	21¾	35½	23½	76½	32⅛	85¼	73½	81
American Car & Fdy...	147⅜	111	151	115¼	201	141	186	178	178
American Loco	109¼	74	110¼	73½	138½	102	129⅞	120⅛	122
American Smelt. & Rfg.	72	29¼	47¼	29⅝	67½	43⅝	58½	53	57⅜
Am. Steel Found., new.	50	26	35	18	46⅛	30¾	38⅛	35½	36¼
Am. Zinc & Lead Co. ..	21¾	5¾	14⅜	6¾	....	....	....	....	....
Anaconda Copper	66½	30	50¾	31¾	57	45	50⅞	45⅛	47¾
Baldwin Loco	148½	78	100⅜	62¼	142¾	92¾	140⅜	129¼	131
Bethlehem Steel B	102½	48⅞	65	41½	82¼	55½	65½	60¼	61¼
Butte & Superior	29¼	8	22⅓	10	35¼	20⅜	33	29½	30
Cerro de Pasco	61⅜	24¼	36½	23	46⅜	32⅞	45¾	42½	42¾
Chile Copper	21¼	7¾	16⅞	9	29¼	15⅛	30⅛	27¾	29
Chino Copper	41⅝	16⅜	29½	19½	33⅜	22¼	27⅞	24⅜	24⅝
Colo. Fuel & Iron	44¼	22	32¾	22	37⅜	24	27¾	25¼	25⅜
Crucible Steel	278½	70	107½	49	98⅜	52¾	74⅞	67½	71½
General Electric	172	116½	143¾	109½	190	136	190	179	184
General Motors	42	10¾	16¼	9⅜	15¼	8⅛	15⅛	13¼	13⅝
Granby Con.	55½	15	34½	15	35	22	26¼	23	23¼
Great Northern Ore ...	41⅝	24⅞	35⅜	25⅝	45⅝	28⅞	32	30	30¼
Gulf States Steel	84⅞	25	50⅞	25	94⅞	44⅞	84¾	78	81⅛
Inspiration Copper	61⅞	28	42¼	29⅝	45	31	36¾	33	33¼
International Harvester	142½	88	100½	67⅝	115⅞	79⅜	90¼	87¾	89
International Nickel...	26¾	11⅛	17	11½	19¾	11¼	16	14	14¾
Kennecott Copper	33½	14⅝	27⅞	16	39⅝	25½	37⅜	35	36⅜
Midvale Steel	52¾	29½	33½	22	45½	26	29½	27	27⅛
National Enam. & Stg..	89½	43¾	66	26	68½	30¾	69⅝	65	67
National Lead	93¼	63½	87	67¾	129¼	85	128¾	123½	126
N. Y. Air Brake (new)	....	....	....	....	41⅝	24½	29¼	26⅝	28
Pressed Steel Car	113⅞	72½	96	48	95¼	63	81½	58	65
Railway Steel Spring ..	106½	73	99½	67	126¼	94	119½	110	110½
Ray Consolidated	22¾	10	15⅞	11	19	12⅛	15	13⅜	13⅝
Republic Iron & Steel.	124¾	55¼	73½	41	78½	43½	52⅜	47	47⅛
Sloss-Sheffield	82¼	43	56	32⅛	54½	34½	50¾	42	47
U. S. Cast Iron Pipe ...	25½	10½	19	11½	39	16⅛	32¾	28½	29
U. S. Smelt., Rfg. & M.	76	29½	39⅜	26	45¾	32¾	40⅛	35	35¾
U. S. Steel Corporation	109	76¼	86½	70	111½	82	108¾	104	104½
U. S. Steel Corp. pfd...	115¾	104⅛	115	105	123	114¼	123½	119	119¾
Utah Copper	80¾	44⅛	63⅜	41⅛	71½	59	66½	62½	63
Westinghouse Electric.	55⅛	40	52¼	38⅞	65⅞	49⅛	63¾	58¾	62¼

BUSINESS TRENDS

BUSINESS FAILURES.

Nineteen-twenty-three opened encouragingly as regards failures as well as in respect to some other business happenings, the total number of casualties reported to Bradstreet's of January being only 2,165, with liabilities of $53,434,003 and assets of $28,757,193. This total of failures shows an increase of 16.2% over December, but it is 20.4%, or one-fifth smaller than the peak total reached in January last year, when 2,722 failures were reported. It is also 8.8% below the total recorded in January, 1915. As regards liabilities, while the aggregate for January is 11.7% larger than in December, it is only about half the total recorded in January a year ago, and 18% less than the total in January, 1921. In addition, it might be noted that while liabilities are 5% in excess of the liabilities of January, 1915, they are 17% below those of January, 1908.

The following table allows of comparisons of failures, assets and liabilities in January back to 1905, as reported by Brradstreet's:

	Number	Assets	Liabilities
1923	2,165	$28,757,193	$53,434,003
1922	2,722	66,218,132	105,773,899
1921	1,993	42,570,509	65,549,146
1920	503	4,118,607	9,197,230
1919	573	7,242,489	12,581,549
1918	1,219	7,244,578	16,629,531
1917	1,558	14,702,267	24,342,506
1916	1,799	8,284,134	17,340,533
1915	2,378	35,428,030	50,576,581
1914	1,729	20,421,273	35,196,682
1913	1,566	8,404,342	15,619,192
1912	1,701	10,766,526	20,120,690
1911	1,376	18,972,069	30,456,469
1910	1,241	9,560,351	17,333,849
1909	1,317	7,217,612	14,073,264
1908	1,706	45,344,483	64,922,450
1907	1,109	8,593,134	18,075,595
1906	1,213	6,636,350	15,360,188
1905	1,199	6,058,467	11,113,964

BANK CLEARINGS.

January bank clearings registered a great surge forward in trade and industry during that month in a total of $36,339,936,000, an aggregate 7.4% larger than in December, 3.7% in excess of the peak total for 1922, set up in October, and 23.4% in excess of January a year ago. Explanatory of these gains may be cited the activity in all lines of industry, heavy buying by railroads, unprecedented sales of building materials to supply the unusual activity in this line, gains of 25% to 50% reported in jobbing trade, and the 38% increase in mail-order sales as compared with January, 1921. The January clearings were, in fact, the largest recorded since October, 1920, but significant of the country-wide extent of the gains over recent months and years, it might be noted that clearings outside of New York in January gained 36.5% over a year ago, as against a gain of only 14.3% at New York, the outside New York total being the largest for any month since March, 1920.

Following are the aggregates of clearings monthly at 118 cities, compared with the like periods in four preceding years:

(Six figures omitted.)

	1923	1922	1921	1920
Jan.	$36,340	$29,429	$32,223	$40,169
Feb.	.....	25,784	25,443	32,001
Mar.	.....	31,422	29,672	39,703
Apr.	.....	30,969	27,688	38,012
May	.....	32,314	27,367	35,527
June	.....	33,524	28,916	36,800
July	.....	31,204	26,834	35,819
Aug.	.....	29,849	26,096	32,799
Sept.	.....	30,683	27,059	34,385
Oct.	.....	35,008	28,974	37,099
Nov.	.....	31,502	29,200	34,407
Dec.	.....	33,837	31,402	36,029
Tot.	.....	$375,525	$340,874	$432,750

NEW INCORPORATIONS.

During January 918 new companies were organized under the laws of the different states with an authorized capital of $100,000 or over, involving $909,693,800. This is considerably above the monthly average for years. In the corresponding month a year ago 1,042 concerns were incorporated, with a combined authorized capital of $843,652,900. There were 757 companies chartered in December, representing a grand total of $813,901,000. This showing emphasizes the hopeful sentiment that now prevails concerning the general business outlook, particularly in view of the fact that the returns, which embrace all lines of industry, are well diversified.

The following are the comparative figures as compiled by **The Journal of Commerce** of companies incorporated in the States with authorized capital of $100,000 or over.

	1923	1922
January	$909,693,800	$ 843,652,900
February	.....	591,404,300
March	.....	731,866,000
April	.....	792,372,000
May	.....	938,195,000
June	.....	297,557,000
July	.....	634,259,200
August	.....	646,605,000
September	.....	650,044,000
October	.....	651,577,390
November	.....	808,719,600
December	.....	813,901,000
Total	.....	8,400,153,390

BUSINESS TRENDS

RAILROAD CAR LOADINGS

Loadings of revenue freight continue at record levels for this time of the year, according to reports filed with the car service division of the American Railway Association by the carriers. During the week ended January 27th the total was 871,164, an increase of 5,586 over the previous week and 130,778 more than were loaded in the corresponding week of 1922.

The following table gives a comparison of the cars loaded with freight since July 1st, and a comparison with the two previous years:

	1923	1922	1921
Jan. 27 ..	871,164	740,386	701,605
Jan. 20 ..	865,578	731,109	708,658
Jan. 13 ..	873,251	714,191	715,855
Jan. 6 ...	770,303	599,433	697,641
	1922	1921	1920
Dec. 30 ..	711,200	518,556	602,368
Dec. 23 ..	834,591	666,605	648,406
Dec. 16 ..	888,032	726,074	802,271
Dec. 9 ...	919,828	741,341	837,953
Dec. 2 ...	845,219	741,849	882,604
Nov. 25 ..	955,495	673,465	803,701
Nov. 18 ..	969,094	790,363	889,188
Nov. 11 ..	958,909	754,777	927,586
Nov. 4 ...	994,827	837,576	915,615
Oct. 28 ...	1,014,480	951,384	981,242
Oct. 21 ...	1,003,759	964,811	1,008,818
Oct. 14 ...	983,470	910,529	1,118,539
Oct. 7	968,169	899,681	1,011,666
Sept. 30 ..	998,381	814,831	992,283
Sept. 23 ..	978,291	874,641	1,008,109
Sept. 16 ..	945,919	852,552	991,166
Sept. 9 ...	832,744	749,552	883,415
Sept. 2 ...	931,598	831,288	961,633
Aug. 26 ..	890,838	828,883	1,001,308
Aug. 19 ..	859,219	818,147	971,103
Aug. 12 ..	852,580	808,269	971,260
Aug. 5 ...	851,351	786,178	935,760
July 29 ..	859,733	795,432	936,366
July 22 ..	861,124	788,031	928,418
July 15 ..	860,907	774,884	942,851
July 8 ...	718,313	640,535	796,191

COMMODITY PRICES.

Commodity prices showed some marked diversities in movement during January, foods as a whole continuing the retrograde movements noted in December, whereas most other products, but particularly textiles and metals, gained still further in strength, according to Bradstreet's review for the month. Six groups of commodities declined during the month, while seven groups advanced, the net result being a very slight increase in the general index number.

Bradstreet's index number as of February 1st totaled $13.7236, an increase of only one-tenth of 1%, whereas in the preceding monthly period a decrease of five-tenths of 1% was shown. While net price movements, as indicated by the total index numbers, have been slight during the past two months, the diversities shown have been fairly accurate reflectors of the differences between domestic and foreign trade during these periods, domestic buying being brisk, while export trade, particularly in foods has been mediocre.

Bradstreet's February 1st index number shows a gain of 20% over February 1st last year and of 29.8% over the low point on June 1, 1921, but is 34.2% below the peak point of February 1, 1920, three years ago. The gain over August 1, 1914, is 57.5%.

A monthly range of index numbers of the past four years is given below:

	1923.	1922.	1921.	1920.
Jan. ..	13.7011	11.3725	12.6631	20.3638
Feb. ..	13.7236	11.4190	12.3689	*20.8690
Mar.		11.6001	11.8650	20.7950
April		11.5317	11.3749	20.7124
May		11.7044	10.8208	20.7341
June		11.9039	10.6169	19.8752
July		12.1069	10.7284	19.3528
Aug.		12.0688	11.0576	18.8273
Sept.		12.0793	11.0868	17.9746
Oct.		12.5039	11.1879	16.9094
Nov.		13.3482	11.3514	15.6750
Dec.		13.7835	11.3127	13.6263

* High record.

NEW CAPITAL ISSUES.

Corporate financing during the first month of 1923 was on an unprecedentedly heavy scale. The total of stock, bond and note issues for the period, $632,783,500, is threefold greater than for the same month a year ago, and with the exception of December, 1922,—with which no true comparison can be made, for the reason that owing to the flood of new capital in the form of stock dividends in that month all issues below $200,000 were eliminated from the monthly total—the heaviest month recorded since the beginning of these statistics in 1907.

Industrial borrowing constituted by far the heavier part of the January total, reaching $559,695,500, as compared with $73,088,000 in railroad issues.

LABOR.

Union Leaders and Law—Ben W. Hooper, chairman of the Railroad Board, in a speech before the Illinois Bar Association, charged that many railway union leaders are waging warfare against the roads with the purpose of destroying the industry and forwarding a political campaign for government ownership. "A large portion of the union magazines which reach me contain bitter attacks on the railroads, their managements and their policies," he said. "These criticisms are not confined to matters of direct controversy between the roads and the employes. Nothing is left unsaid that seems calculated to stir up hatred among the employes and distrust and hostility among the people." Chairman Hooper charged the union leaders with a deliberate effort to discredit the United States Supreme Court in the minds of the public, because of its rulings on labor injunctions. The effect of such a campaign, if successful, he said would be to arouse contempt for all law, order and government.—**American Industries.**

Striking Against the Public—The conviction of eight trainmen accused of interfering with interstate commerce by deserting a train in the Arizona desert, thereby obstructing the movement of mail and passengers, is an indication of the unwillingness of the people of this country to tolerate strikes against the public interest. When Calvin Coolidge, at the time of the police strike in Boston, gave trenchant expression to the thought that had long been in the minds of many persons, "there is no right to strike against the public safety by anybody, anywhere, anytime," he expressed the reaction of the American people to the entire question of strikes which interfere with the rights of the public at large. This same feeling existed at the time of the coal strike and the railroad strike. People realized that the dependence of the mass of citizens on transportation is almost as great as it is on the maintenance of order. It so happens that the offense of the convicted trainmen was rendered more obnoxious by the fact that the train which they deserted was left in the desert and its passengers subjected to unnecessary and unjust hardships. But the principle involved would have been the same even had these circumstances not existed. Although a large part of the public may have had William Allen White's 40% sympathy for the shopmen, they lost this when acts of the strikers endangered the interests of the public. Perhaps the conviction of the California trainmen will impress this lesson on the minds of the nation's labor leaders.—**New York Tribune.**

Labor and Management—The function of the management is not only just to organize production but to appoint buyers and sell the goods, a job which is a craft of its own into which the average working man could not enter without very grave results. There are certain things which can be done only by the financier. Let him do his job, and give him the stability he requiries. Let the owners do their job. There are certain things the buyers of raw materials and the sellers of the finished articles alone can do. Let them do their job. But labor, which produces the goods, give them their proper place.—**Industrial Management.**

Coal Commission May Place Blame for Strikes—It is significant that while the Coal Commission does not claim authority to negotiate or arbitrate, it does have a specific duty to investigate the causes of strikes. In an appeal to coal operators and mine workers assembled at Chicago to set up the machinery for wage scale negotiations, John Hays Hammond stated that the commission would not hesitate to fix the blame if the mines were shut down April 1st. Were an impartial body like the Coal Commission to place the blame, all admit the possibility that the public may then take into its own hands the matter of arbitrating the disputed points, without being invited by either side of the controversy. The coal consuming public is tired of living under the existing armistice between operators and mine workers. Peace, not an armed truce, is wanted. The people who burn coal look to the men who own the mines and to the men who work in them to come to terms and to keep at work.—**Power.**

IRON AND STEEL MARKET

As December was a month of increasing turnover in finished steel products January was a month of decreasing activity, in point of tonnage. The two months constituted a distinct buying movement in the steel market. This buying movement had three peculiarities:

(1) It was quite out of season, for traditionally December is a very dull month in steel, and January usually witnesses less than one-twelfth of the year's business.

(2) It was superposed on the preceding buying movement, without there being an intervening period of low prices.

(3) It was particularly a movement in early deliveries, the proportion being high. A natural consequence was that the independents sold more than the Steel Corporation as they had early deliveries to offer while the Steel Corporation was already well sold ahead.

The exact point at which a buying movement begins or ends cannot be ascertained mathematically but it seems fair to consider that the movement, as a movement, is over, leaving manufacturing consumers well covered, in the main, to April 1st, and mills correspondingly well sold, with of course a great deal of business on books extending over a longer period. Buying in February and March is likely to be chiefly against new wants arising, particularly in connection with construction work.

Steel Market is Strong.

Decline in the buying movement does not by any means involve anything in the way of weakening of the steel market. The market is stronger than at any previous time in the movement. Mills consider that there is a sellers' market again and while there is not what could be called a general advancing movement in steel prices there are advances here and there from time to time.

Strength of the market is illustrated by the fact that inquiries are frequently turned down by mills, refusal being due to inability to make desired delivery, unwillingness to sell beyond a certain date, or suspicion that the offered order is partly speculative in character. As some business has to go the rounds before

COMPOSITE PIG IRON.

Computation for February 1, 1923.

One ton Bessemer, valley	$27.50
Two tons basic, valley (25.00)	50.00
One ton No. 2 fdy., valley	27.00
One ton No. 2X fdy., Philadelphia	29.76
One ton No. 2X fdy., Buffalo	27.75
One ton No. 2 fdy., Cleveland	28.00
One ton No. 2 fdy., Chicago	29.11
Two tons No. 2 Southern foundry, Cincinnati (28.05)	56.10
Total, ten tons	275.22
One ton	**27.522**

Averaged from daily quotations.

	1923.	1922.	1921.	1920.	1919.	1918.
Jan.	27.31	19.71	32.62	39.84	32.39	34.19
Feb.	.....	19.31	29.95	42.72	32.39	34.19
Mar.	.....	19.26	27.35	43.05	30.47	34.14
Apr.	.....	20.77	25.80	43.62	28.05	33.88
May	.....	23.91	24.67	44.43	27.74	33.88
June	.....	24.29	23.08	44.80	27.15	33.91
July	.....	24.54	21.57	45.60	27.66	34.04
Aug.	.....	27.74	20.29	47.41	27.99	34.04
Sept.	.....	32.48	20.99	48.98	28.26	34.31
Oct.	.....	31.82	21.15	47.07	28.65	35.36
Nov.	.....	29.47	20.92	41.80	31.48	35.39
Dec.	.....	26.73	20.42	36.31	36.73	35.23
Year	.....	25.00	24.05	43.80	29.91	34.38

Annual Averages

1917	39.99	1914	13.52
1916	20.31	1913	15.42
1915	14.15	1912	14.82

COMPOSITE STEEL.

Compuation for February 1, 1923:

Pounds.	Group.	Av. Price.	Extension.
2½	Bars	2.10	5.250
1½	Plates	2.10	3.150
1½	Shapes	2.10	3.150
1½	Pipe (1-3)	3.30	4.950
1½	Wire nails	2.80	4.200
1	Sheets (28 ga.)	3.35	3.350
½	Tin plate	4.75	2.375
Total, ten pounds			26.425
One pound			**2.6425**

Averaged from daily quotations.

	1923.	1922.	1921.	1920.	1919.	1918.
Jan.	2.59	2.16	3.25	3.35	3.58	3.80
Feb.	....	2.14	3.10	3.58	3.58	3.80
Mar.	....	2.09	2.94	3.78	3.47	3.80
Apr.	....	2.16	2.93	3.77	3.25	3.80
May	....	2.18	2.93	3.71	3.25	3.80
June	....	2.22	2.83	3.67	3.25	3.80
July	....	2.23	2.63	3.70	3.25	3.80
Aug.	....	2.36	2.48	3.80	3.25	3.80
Sept.	....	2.51	2.37	3.80	3.22	3.80
Oct.	....	2.57	2.31	3.67	3.23	3.80
Nov.	....	2.57	2.28	3.50	3.25	3.80
Dec.	....	2.57	2.23	3.28	3.25	3.67
Av.	....	2.31	2.69	3.63	3.32	3.79

Annual Averages

1917	4.46	1916	2.80	1915	1.63
1914	1.52	1913	1.72	1912	1.62

finding a seller an appearance of greater tonnage is created than actually exists. Thus an inquiry for 1,000 tons that is turned down four times and finds a seller in the fifth mill may make a 5,000-ton impression on the general appraisal of the size of the current demand.

In the major products, advances in January involved bars, shapes, plates and plain wire, $2.00 a ton each. Nails were advanced $2.00 a ton by independents but not by the leading interest. February 1st independents began advancing pipe, two points on merchant pipe, three points on line pipe and $6.00 a net ton on oil country goods generally, and the trade expects the leading interest to follow eventually.

Other advances in the month were three points on welded steel boiler tubes, $3.00 on cold finished steel bars, ground shafting and standard spikes and $5.00 a ton on small spikes, boat and barge spikes and chain.

The General Swing.

The coal strike began April 1, 1922. In the first three months the strike condition restricted steel production in that production was unable to increase as much as was desired. In the next three months there was an actual recession, August and September being well below the June rate. While the strike ended in the latter part of August production of pig iron and steel in September was well below the June rate.

In August and September there was a guessing contest between sellers and buyers. Buyers guessed that the market would go as it usually does when a period of scarcity is followed by a period of relative plenty. Sellers guessed that buyers would think along this line and

PIG IRON PRICES

(Averaged from daily quotations; at Philadelphia, Buffalo, Cleveland and Chicago, prices are delivered.)

	Bessemer, Valley	Basic, No. 2 fdy. Valley		Basic. Phila.	No. 2X Phila.	No.2Xfdy. Buffalo.	No. 2 fdy. Cleveland.	No. 2 fdy. Chicago.	No. 2 fdy. Birmingham.	Ferro-manganese.*	Comp. Pig Iron.
Feb. 1921	29.63	27.71	28.29	29.28	30.73	30.17	30.15	30.87	27.50	90.00	29.95
Mar. ...	26.70	24.41	25.89	26.54	28.03	29.01	27.70	27.07	25.52	90.00	27.35
April ..	25.00	23.00	24.81	25.47	26.38	27.17	26.77	25.32	23.77	90.00	25.80
May ...	24.32	22.15	23.60	23.70	24.96	25.40	25.56	23.70	21.80	85.00	24.47
June ...	22.88	21.20	22.42	23.54	24.21	22.45	24.17	22.08	20.48	75.00	23.08
July ...	21.34	19.52	20.40	22.40	23.00	20.68	21.66	19.98	20.18	70.00	21.57
Aug. ...	20.00	18.22	19.59	19.70	20.42	19.48	20.56	19.64	18.70	68.50	20.29
Sept. ..	20.00	19.00	20.86	19.14	20.84	20.08	20.56	22.18	19.06	66.00	20.99
Oct. ...	20.00	19.24	21.00	20.50	21.40	20.50	20.56	22.35	19.00	60.00	21.15
Nov. ...	20.00	19.00	20.78	20.50	21.93	19.82	20.56	21.79	18.56	60.00	20.92
Dec. ...	20.00	19.00	20.00	20.45	21.88	19.38	20.56	20.53	17.31	59.00	20.42
Jan. 1922	19.62	18.19	19.38	20.25	21.34	19.75	19.92	19.84	15.96	58.00	19.71
Feb.	19.40	18.00	18.92	19.84	21.34	19.06	19.56	19.18	15.33	65.75	19.31
Mar. ...	19.02	17.89	18.87	19.84	20.73	18.56	19.56	20.48	15.31	62.50†	19.26
April ..	20.88	19.98	20.74	20.75	22.90	20.89	20.76	21.06	15.74	68.00†	20.77
May ...	25.08	24.62	24.00	23.37	25.51	23.44	24.56	23.05	17.63	70.00†	23.91
June ..	25.00	25.00	24.00	25.00	26.62	22.96	24.56	23.83	18.44	68.50†	24.29
July ...	25.00	24.32	24.20	25.54	28.00	25.05	24.56	24.73	18.56	69.00†	24.54
Aug. ...	27.74	26.17	29.04	29.00	31.69	30.42	29.16	28.17	20.37	70.00†	27.74
Sept. ..	33.76	30.08	35.02	30.90	34.76	34.13	35.50	32.53	25.40	77.00†	32.48
Oct. ...	33.23	30.23	31.63	29.50	32.69	31.60	34.27	32.15	27.04	100.00†	31.82
Nov. ...	31.70	28.28	28.78	28.14	30.78	28.41	31.34	30.65	24.12	100.00‡	29.46
Dec. ...	27.78	24.96	25.92	27.50	28.53	26.19	27.38	28.09	22.70	100.00‡	26.73
Jan. 1923	27.50	25.00	27.00	27.90	28.72	27.44	27.83	29.09	23.23	103.00‡	27.31
Yearly averages.											
1913 ...	16.26	14.77	14.87	16.23	16.56	14.87	15.37	16.39	11.73	57.87	15.42
1914 ...	13.99	12.89	13.02	14.02	14.59	12.84	13.76	14.15	10.25	55.80	13.52
1915 ...	14.90	13.78	13.81	14.88	15.25	13.98	14.31	14.46	10.59	92.21	14.15
1916 ...	23.05	19.87	20.16	20.96	21.26	20.63	20.40	20.67	15.84	164.12	20.31
1917 ...	42.67	39.10	39.89	39.37	40.80	40.41	40.61	41.06	35.11	309.17	39.99
1918 ...	35.46	32.50	33.27	34.10	35.56	33.97	33.62	33.77	33.20	245.83	34.38
1919 ...	29.62	27.49	28.63	30.02	32.75	30.53	29.14	29.37	28.34	132.16	29.91
1920 ...	42.85	42.05	43.25	43.26	46.74	45.23	43.66	43.25	40.43	172.33	43.80
1921 ...	23.49	21.87	23.30	23.56	24.74	23.78	24.34	24.05	21.92	76.54	24.05
1922 ...	25.68	23.98	25.04	24.88	27.07	25.04	25.93	25.31	19.72	75.33	25.00

* Delivered. † Seaboard. ‡ F. o. b. furnace.

accordingly fortified themselves with orders for that period, well in advance. When their production was still greatly restricted they were selling assiduously and quietly for the later period, to buyers who they knew needed the material and would be certain to take it. The outcome was that in November the buyers found the mills in stronger position than they had anticipated. Some still expected the market would weaken in December, By December 1st, with the mills still in an easy position, and buyers convinced of the distinct possibility of another coal strike April 1st, whether the chances were two in five or three in five being merely a detail, the disposition to cover fully for the first quarter of the new year naturally arose, and soon a buying movement was in full swing. This was by jobbers and manufacturing consumers, while at the same time a good demand continued for steel for construction work, including fabricated steel structures and freight cars.

The buying movement, however, has not been distinctly one for the quarter year, in the old contract form with monthly specifications. Rather the buying has been of definite tonnages, for various deliveries, some lapping over April 1st, while there are various orders that will run even beyond July 1st.

The great majority of mills are now filled with business solidly for at least two months to come, and it is commonly held that this is sufficient to give the mills a momentum to carry them to July 1st with as heavy operation as can be compassed. Additional business will have to be booked, of course, but even in a distinctly dull market there is to be expected a moderate volume of business. While the actual condition cannot be reduced to figures an illustration can be given. If a mill February 1st has two months of business piled solidly ahead and then books at the rate of 60% of the shipments it will be July 1st before it is played out.

Mill Operations.

Production of steel ingots averaged a rate of 34½ million tons a year from April 1st to October 1st. In each of the next three months the rate was approximately 40,000,000 tons a year. The potential capacity in December was, however, larger as there was some loss of tonnage over the holidays. Taking November as a pivot, then, it is to be reported that since December 1st two regular Bessemer works have been put in operation after long periods of idleness, the Riverside works of the National Tube Company, specializing on merchant pipe, and the Bellaire works of the Carnegie Steel Company, specializing on sheet bars. Both are in the Wheeling district. It is to be noted further that labor conditions have been growing somewhat easier, chiefly, probably wholly, on account of outdoor work being seasonally curtailed. Thus one may expect a higher production rate in February than the 40,000,000 ton rate of November, and as March is normally a big month for production, on account of weather conditions, it is likely to see still heavier tonnage. The ingot rate may work up close to 45,000,000 tons. After March production is likely to recede somewhat. No one assumes that the steel industry can operate full, irrespective of order books, 1916 having been the last year of capacity operation. The capacity now is about half way between 50,000,000 and 55,000,000 tons. In 1906 there was also a capacity operation. In each one of the nine years intervening there were lean order books at the beginning or end or throughout the year. Since 1916 full order books have not produced full operation, on account of transportation, labor, etc. The steel capacity has grown more than the railroad capacity or the labor supply or, perhaps, the actual requirements of consumers.

PIG IRON

There was a very fair sized movement in foundry pig iron in December, for first quarter delivery, naturally leaving January to show a quiet market, which it has done. In steel making iron there has been less disposition to cover for a definite period, and purchases have been intermittent. Foundry iron in the central west has easily been stronger than steel making iron, probably on account of the willingness of a number of steel works to sell iron, while few have ores with which to make foundry grade. In the east the foundry iron market has been affected by imported iron.

There has been little disposition to buy pig iron for delivery beyond March and with the quarter's consumption well covered a dull pig iron market is natural. Unwillingness of consumers to buy beyond April 1st is attributable in part to the condition of the coke market, which has maintained a price level far above what metallurgical conditions would have produced, there being widespread de-

mand for coke for domestic use. With domestic requirements soon to disappear, and with peace assured in coal labor for a year from next April 1st, the expectation is that coke prices will be liquidated and pig iron consumers naturally wish to wait and see what effect that will have upon pig iron prices.

PIG IRON PRODUCTION

Production of coke and anthracite pig iron in January was 3,229,600 tons, approximately, which is at a daily rate of 104,181 tons. In October 1920, which was the nearest parallel to January, the daily rate was 106,212 tons and the total for the month was 3,292,597 tons.

It is notable that in January—last month—merchant furnaces decreased output at the rate of 208 tons a day as compared with December. On the other hand steel company furnaces produced at the rate of 79,991 tons a day against a December daily production of 75,179 tons. Thus there was an increase in January of 4,812 tons a day by steel company furnaces and the net increase by all furnaces was 4,604 tons a day.

On February 1st the 262 furnaces in blast had an estimated daily capacity of 105,125 tons. On January 1st, the 253 furnaces in blast had an estimated capacity of 101,400 tons a day.

The annual rate of production in January was 38,027,000 tons against an annual rate in December of 36,350,000 tons. This of course refers to only coke and anthracite iron. On February 1st, pig iron was being produced at the rate of a little over 3,837,000 tons of coke and anthracite. Including charcoal, the annual rate was approximately 38,500,000 tons.

The following table shows the estimated annual rates of production of coke and anthracite iron in each month during the last three years.

Estimated annual rates.

	1923	1922	1921
Jan.	38,000,000	19,300,000	28,750,000
Feb.		21,300,000	25,550,000
Mar.		24,000,000	19,000,000
April		25,250,000	14,600,000
May		27,250,000	14,450,000
June		28,900,000	13,000,000
July		28,500,000	10,200,000
Aug.		21,550,000	11,250,000
Sept.		24,950,000	13,000,000
Oct.		31,350,000	14,600,000
Nov.		34,900,000	17,200,000
Dec.		36,350,000	19,400,000

Yearly Totals

1921	16,650,000	1916	39,434,797
1920	36,925,987	1915	29,916,213
1919	31,015,364	1914	23,332,244
1918	39,054,644	1913	30,966,152
1917	38,621,216	1912	29,726,937

STEEL PRODUCTION

Production of steel ingots in January by the 30 companies which report to the American Iron and Steel Institute, was 3,251,694 tons, made up of 2,571,491 tons of open-hearth, 677,486 tons of Bessemer and 2,717 tons of all other kinds of steel. Out estimate of the January output of these 30 companies, published

UNFINISHED STEEL AND IRON BARS.

Averaged from daily quotations.

1921—	Billets. Pitts.	Sheet Bars. Pitts.	Rods. Pitts.	—Iron bars, deliv.— Phila.	Pitts.	Ch'go.
Jan.	45.00	47.00	57.00	2.85	3.06	2.68
Feb.	42.00	42.00	57.00	2.70	2.70	2.62
Mar.	39.00	39.00	47.00	2.56	2.60	2.60
April	37.00	38.50	47.50	2.35	2.45	2.45
May	37.00	39.00	48.00	2.35	2.35	2.38
June	35.00	36.00	48.00	2.20	2.25	2.25
July	32.00	33.00	43.00	2.07	2.20	1.94
Aug.	30.25	30.50	42.00	2.00	2.08	1.75
Sept.	30.00	30.00	40.50	1.97	2.00	1.75
Oct.	30.00	30.00	40.00	1.92	2.00	1.75
Nov.	29.00	30.00	40.00	1.90	1.97	1.70
Dec.	29.00	29.00	38.00	1.85	1.95	1.70
1922—						
Jan.	29.00	29.00	37.00	1.80	1.82	1.60
Feb.	28.50	29.00	36.00	1.75	1.78	1.60
Mar.	28.00	29.00	36.00	1.70	1.70	1.54
April	30.00	31.75	38.00	1.81	1.75	1.57
May	34.00	35.00	38.00	1.86	1.83	1.65
June	35.00	35.00	38.00	1.96	1.95	1.73
July	35.00	35.00	40.00	2.12	2.13	1.85
Aug.	37.00	37.00	43.00	2.16	2.15	1.95
Sept.	39.00	40.00	45.00	2.48	2.25	2.25
Oct.	39.50	39.50	45.00	2.43	2.40	2.50
Nov.	37.75	37.75	45.00	2.37	2.40	2.50
Dec.	36.50	36.50	45.00	2.32	2.35	2.50
1923—						
Jan.	37.50	37.50	48.50	2.36	2.38	2.45
Yearly averages.						
1913.	25.56	26.35	28.39	1.51	1.59	1.45
1914.	20.08	20.84	25.50	1.20	1.27	1.07
1915.	23.14	23.46	28.28	1.37	1.32	1.24
1916.	45.02	45.10	57.58	2.57	2.59	2.31
1917.	71.15	75.87	80.23	4.06	4.09	3.78
1918.	47.30	50.80	57.00	3.71	3.50	3.50
1919.	40.52	43.77	53.11	2.94	2.80	2.69
1920.	57.79	65.21	70.00	4.35	4.13	3.65
1921.	34.60	35.33	45.67	2.23	2.30	2.13
1922.	34.10	34.54	40.50	2.06	2.04	1.94

February 2nd, was 3,182,000 tons, or within 69,694 tons of the total reported this morning by the Institute.

All of the steel companies, if those that did not report, operated at the same average rate of those that made returns, had a total output in January of 3,716,221 tons, of which the Steel Corporation produced 1,670,240 tons and independent companies—those reporting and those not reporting—2,045,981 tons.

Daily Output.

The daily rate of output of all companies in January was 142,931 tons. January production, therefore of all companies—both the daily rate and the total for the month—was the largest since March 1920. In the latter month the companies which reported to the American Iron and Steel Institute had a production of 3,299,040 tons and all companies produced approximately 3,925,236 tons, which was equivalent to an average daily rate of 150,097 tons.

The increase in production in January over December was about 16%, considering all companies combined and the rate of operation for the industry as a whole was about 84% of capacity. In December, 1922, the industry as a whole utilized about 75% of capacity.

Steel Corporation.

The Steel Corporation operated at an average rate of about 88% of capacity last month against an average rate of 78.8% in December, indicating a January output of 1,670,240 tons, which was at the rate of 64,240 tons a day. In December the Corporation produced 1,436,275 tons of ingots which was at the rate of a little over 57,000 tons a day.

Independent Companies.

Independent companies are indicated to have utilized a little over 81% of capacity in January, which means an output of 2,045,981 tons of ingots, at a daily rate of 78,691 tons. In December independent companies produced 1,740,000 tons which was at a daily rate of slightly under 70,000 tons.

Institute's Report.

The thirty companies which report to the American Iron & Steel Institute had a daily output of 125,065 tons in January 1923, against a daily output of 111,196 tons in December, and 111,126 tons in November 1922, while in March, 1920, these companies had a daily output of 126,885 tons a day.

(Continued on page 94)

STEEL MAKING PIG IRON AVERAGES

Bessemer and basic pig iron averages compiled by Messrs. W. P. Snyder & Company from sales in the valley market of 1,000 tons and over.

	Bessemer.			Basic.		
	1923.	1922.	1921.	1923.	1922.	1921.
Jan.	27.50	19.50	32.00	25.58	18.19	30.00
Feb.	.....	19.50	27.00	.....	17.75	25.00
Mar.	.....	19.39	26.20	.....	18.00	24.50
April	.....	20.54	25.00	.....	19.30	22.50
May	.....	24.40	24.25	.....	24.91	21.87
June	.....	25.00	23.00	.....	25.00	20.70
July	.....	25.00	20.88	.....	24.56	18.80
Aug.	.....	28.67	20.00	.....	25.41	18.33
Sept.	.....	33.50	20.00	.....	32.93	19.25
Oct.	.....	33.50	20.00	.....	30.00	19.00
Nov.	.....	31.75	20.00	.....	27.60	19.00
Dec.	.....	28.10	20.00	.....	24.57	18.69
Year	.....	25.75	23.19	.....	24.02	21.47

All prices are f.o.b. valley furnace; freight, August 26, 1920, $1.96; August 1, 1922, $1.77.

STEEL CORPORATION BOOKINGS

Changes in unfilled tonnage with shipments and bookings estimated in percentage of capacity.

	Shipments.	Bookings.	Difference.	Difference.
1921.	%	%	%	Tons.
Nov.	52	49	— 3	— 362,287
Dec.	48	49	+ 1	+ 17,872
1922.				
Jan.	47	45	— 2	— 26,736
Feb.	57	49	— 8	— 100,609
Mar.	65	90	+25	+ 353,079
April ...	70	115	+45	+ 602,769
May	75	86	+11	+ 157,311
June	75	103	+28	+ 381,303
July	75	86	+11	+ 140,630
Aug.	67	79	+12	+ 173,944
Sept. ...	67	121	+54	+ 741,502
Oct.	76	91	+15	+ 210,680
Nov.	81	76	— 5	— 62,045
Dec.	80	73	— 7	— 94,539

Unfilled Orders.

At end of the quarter, last three figures omitted.	First.	Second.	Third.	Fourth.
1905	5,579	4,829	5,865	7,605
1906	7,018	6,809	7,936	8,489
1907	8,043	7,603	6,425	4,642
1908	3,765	3,313	3,421	3,603
1909	3,542	4,057	4,796	5,927
1910	5,402	4,257	3,158	2,674
1911	3,447	3,361	3,611	5,084
1912	5,304	5,807	6,551	7,932
1913	7,468	5,807	5,003	4,282
1914	4,653	4,032	3,787	3,836
1915	4,255	4,678	5,317	7,806
1916	9,331	9,640	9,522	11,547
1917	11,711	11,383	9,833	9,381
1918	9,056	8,918	8,297	7,379
1919	5,430	4,892	6,284	8,265
1920	9,892	10,978	10,374	8,148
1921	6,284	5,117	4,560	4,268
1922	4,494	5,635	6,691	6,746

These Bonds, having all been sold,

$1

Anaconda Cop

First Consolidated Mortgag

To be Dated February 1, 1923 **Authorized**

Coupon Bonds in denominations of $1,000 and $500, registerable
tions of $1,000 and authorized multiples. Interest payable Febr
Redeemable as a whole or in part at the option of the Compa
February 1, 1933, at 103½ thereafter if redeemed on or before
interest payabl
THE NATION

GUARANTY TRUST

The Company will refund upon proper application the Penns
The Mortgage will provide for a Sinking Fund to r

The following information has been furnish

Business: The Anaconda Copper Mining Company together with the companies whic
been heretofore consolidated with it have for nearly forty years occupied a p
as the world's largest producers of copper and silver with also a large ou
zinc, lead, gold, arsenic and other important metals, besides treating upon a custom basis
quantities of ores and metals for other producers. Through its acquisition of the American
Company, which is the largest factor in the world in the manufacturing and fabricating of
and brass, the Anaconda Copper Mining Company has become a completely integrated or
tion covering every step in the copper industry, and now proposes to acquire a majority
capital stock of the Chile Copper Company which has the most extensive and one of the mo
uable known bodies of copper ore in the world.

Purpose of Issue: Through the issuance of these Bonds and $50,000,000 Debentures, the Co
will acquire 2,200,000 shares, constituting more than 50%, of the outst
capital stock of the Chile Copper Company, will redeem the entire issue
$23,080,100 Ten-Year Secured Gold Bonds Series B 7%, and will reimbu
treasury in part for the acquisition of the capital stock of the American
Company. The remaining proceeds will increase the Company's working capital.

Security: The Bonds, in the opinion of counsel, will be secured by a direct mo
lien on all the plants, real estate and equipment owned by the An
Copper Mining Company at the date of the execution of the Mortgage a
the pledge thereunder of shares of capital stock of certain controlled companies, subject
prior payment of $24,669,000 outstanding Series A 6% Ten-Year Secured Gold Bonds, due J
1, 1929, which are non-callable. The total aggregate value of such properties and the ass
the said companies amounts to more than $173,000,000, as included in the consolidated balance
of the Anaconda Copper Mining Company.

Application will be made to lis

The Bonds are offered if, as and when issued and received
counsel of all legal matters. It is anticipated tha

Price 96½ and I

Against confirmed sales, we will accept in payment, bond for
6%, due January 1, 1929, at 102 and accrued interest to Febru
at 104 and accrued interest to February 1, 1923, the difference
Company. Special forms of interim receipts will be issued cov
Bonds, Series A 6%, will be in addition to the amount of this

Guaranty Company of New York

Bankers Trust Company, New York **Le**
Dillon, Read & Co.
Kidder, Peabody & Co. **Bro**
E. H. Rollins & Sons **Kiss**
White, Weld & Co. **Ho**
Hayden, Stone & Co. **Ke**
Redmond & Co. **Marshall**
Cassatt & Co. **Edw**
Blyth, Witter & Co. **J. &**
Old Colony Trust Company **Fi**
Boston
Mellon National Bank, Pittsburgh
Continental and Comm
First Trust & Savings Bank, Chicago
The Union Trust Company, Cleveland
Anglo London Paris Company,
San Francisco

The above information is based upon official statements and sta

ement appears as a matter of record only.

)0,000

Mining Company

A Sinking Fund 6% Gold Bonds

Bonds, $200,000,000 To mature February 1, 1953

ipal only, interchangeable with fully registered Bonds in denomina- August 1 without deduction for normal Federal income tax up to 2%. nterest date on thirty days' prior notice at 105 if redeemed on or before 1943, and at 102 thereafter and prior to maturity. Principal and States gold coin at
ANK OF NEW YORK

OF NEW YORK, TRUSTEE
our Mills Tax to holders of Series A Bonds resident in that State
present and future issues of Series A Bonds by maturity

John D. Ryan, Chairman of the Board of Directors:

The company will also specially pledge with the Trustee for the prior security of Bonds issued under the First Consolidated Mortgage, shares of capital stock of the Chile Copper Company, American Brass Company and Inspiration Consolidated Copper Company which, on the basis of actual cost, represent a value in excess of $130,000,000.

The Mortgage will contain provisions for its modification, in certain respects, with the assent of holders of 75% of outstanding Bonds.

Balance Sheet: On the basis of the consolidated balance sheet of the Company as of September 30, 1922, after giving effect to the application of the proceeds of sale of these $100,000,000 Bonds and to the issue of $50,000,000 Debentures, the net tangible assets, after deducting all liabilities, except funded debt, are $382,335,995, as compared with a mortgage indebtedness of $124,669,000 and a total funded debt, including the Debentures, of $174,669,000.

Earnings: The combined average annual net income of the Anaconda Copper Mining Company and the American Brass Company, before interest and depreciation, but after Federal taxes, for the ten years ended December 31, 1921, amounted to $26,090,408 per year which is almost 3½ times the annual interest charges on the presently proposed mortgage indebtedness, including this issue, and over two and one-quarter times the annual interest charges on the total funded debt, including the proposed issue of Debentures.

While unsatisfactory conditions prevailed during the first part of the year 1922, operations during the last half of the year have resulted in earnings available for interest and depreciation at the rate of over $12,000,000 per annum.

Because of an exceptionally low production cost the Chile Copper Company on the basis of a 15c price for copper should show an average profit before interest, depreciation and depletion of over $14,000,000 per annum at the present rate of production.

onds on the New York Stock Exchange

iect to authorization of the Company's stockholders and to approval by of interim receipts will be made on or about February 1, 1923.

Yielding over 6.25 %

aconda Copper Mining Company Ten-Year Secured Gold Bonds, Series A and Ten-Year Secured Gold Bonds, Series B 7%, due January 1, 1929, se to be paid in cash at the time of delivery of the new bonds of the exchanges. Bonds issued in exchange for Ten-Year Secured Gold

The National City Company
The Mechanics & Metals National Bank, New York
son & Co. — Harris, Forbes & Co.
ners & Co. — Halsey, Stuart & Co., Inc.
cutt & Co. — Hallgarten & Co.
& Weeks — Spencer Trask & Co.
or & Co. — W. A. Harriman & Co., Inc.
ore, Ward & Co. — Chas. D. Barney & Co.
mith & Co. — Graham, Parsons & Co.,
man & Co. — Ames, Emerich & Co.
nal Bank — National Shawmut Bank
ton — of Boston
The Union Trust Company of Pittsburgh
rust & Savings Bank, Chicago
The Northern Trust Company, Chicago
The Cleveland Trust Company, Cleveland
f Italy — Mercantile Securities Co.
ncisco — San Francisco

which we have relied. We do not guarantee but believe it to be correct.

Annual Output Rate.

The annual rate of output of all companies in January was 44,451,541 tons, of which independent companies are responsible for 24,472,901 tons and the U. S. Steel Corporation for 19,978,640 tons.

In December 1922 the annual rate of production by all companies was slightly over 39,500,000 tons and in March 1920 production was at the rate of 46,680,167 tons a year. Prior to March 1920 the Institute reported high points of monthly production in October 1918 and October 1917.

The following table shows the monthly production reported by the 30 companies which make returns to the American Iron and Steel Institute, as compared with the corresponding months last year, also the estimated annual rate of production by all steel companies for each month during the years 1922 and 1921:

	Month's production as reported.		Estimate of total annual rate. (000 omitted)	
	1922.	1921.	1922.	1921.
Jan.	1,593,482	2,203,180	22,750	29,100
Feb.	1,745,022	1,749,477	26,850	25,400
Mar.	2,370,751	1,570,978	32,550	21,000
April	2,444,513	1,213,958	35,450	16,800
May	2,711,141	1,265,850	36,400	18,000
June	2,634,477	1,003,406	36,600	14,000
July	2,487,104	803,376	36,000	11,100
Aug.	2,214,582	1,138,071	30,000	15,800
Sept.	2,373,779	1,174,740	33,000	16,850
Oct.	2,872,415	1,616,810	40,000	23,000
Nov.	2,889,297	1,660,001	40,000	23,300
Dec.	2,779,890	1,427,093	39,500	19,750
	1923.		1923.	
Jan.	3,251,694		Jan.	44,450

Yearly Totals.

1922 ...	29,116,453		
1921 ...	16,826,946	1916 ...	41,401,917
1920 ...	40,881,392	1915 ...	31,284,212
1919 ...	33,694,795	1914 ...	22,[illegible]19,784
1918 ...	43,051,022	1913 ...	30,280,130
1917 ...	43,619,200	1912 ...	30,284,682

FINISHED STEEL PRICES

(Averaged from daily quotations, f.o.b. Pittsburgh).

						Grooved		—— Sheets ——				Comp.
	Shapes.	Plates.	Bars.	Pipe.	Wire.	Wire Nails.	Steel Skelp.	Black	Galv.	Blue Annld.	Tin plate.	Fin. Steel.
Feb. 1921	2.30	2.35	2.13	57½	3.00	3.19	2.30	4.22	5.45	3.30	7.00	3.10
Mar.	2.10	2.10	2.00	57½	3.00	3.01	2.20	3.95	4.98	3.00	7.00	2.94
April ...	2.16	2.16	2.06	61	3.00	3.15	2.15	3.90	4.85	3.05	6.54	2.93
May	2.20	2.20	2.10	62½	3.00	3.25	2.20	4.00	5.00	3.10	6.25	2.93
June	2.15	2.06	2.08	62½	2.75	3.00	2.10	3.86	4.80	2.95	5.90	2.83
July	1.96	1.93	1.88	64	2.56	2.81	1.90	3.46	4.40	2.55	5.75	2.63
Aug.	1.84	1.84	1.75	64½	2.50	2.75	1.75	2.94	3.94	2.30	5.25	2.48
Sept. ...	1.68	1.67	1.67	66⅝	2.57	2.85	1.67	2.83	3.83	2.33	5.00	2.37
Oct.	1.60	1.59	1.60	68½	2.60	2.90	1.65	3.00	4.00	2.25	4.75	2.31
Nov.	1.60	1.51	1.56	68½	2.60	2.90	1.60	2.92	3.92	2.25	4.75	2.28
Dec.	1.57	1.50	1.53	69¾	2.44	2.70	1.52	3.00	4.00	2.25	4.72	2.23
Jan. 1922	1.50	1.50	1.50	71	2.25	2.50	1.50	3.00	4.00	2.25	4.75	2.16
Feb.	1.46	1.46	1.46	71	2.22	2.47	1.46	3.00	4.00	2.25	4.75	2.14
Mar.	1.41	1.39	1.41	71	2.25	2.40	1.40	3.00	4.00	2.25	4.61	2.09
April	1.50	1.49	1.50	71	2.25	2.40	1.50	3.12	4.12	2.37	4.66	2.16
May	1.52	1.52	1.55	71	2.25	2.40	1.55	3.15	4.15	2.40	4.72	2.18
June	1.60	1.60	1.60	71	2.25	2.40	1.60	3.15	4.15	2.40	4.75	2.22
July	1.62	1.62	1.62	71	2.25	2.40	1.62	3.15	4.15	2.40	4.75	2.23
Aug.	1.82	1.82	1.80	70⅛	2.26	2.41	1.80	3.27	4.27	2.46	4.75	2.36
Sept.	2.00	2.00	1.92	68	2.37	2.62	2.10	3.35	4.35	2.60	4.75	2.51
Oct.	2.00	2.08	2.00	66⅞	2.45	2.70	2.05	3.35	4.35	2.70	4.75	2.57
Nov.	2.00	2.00	2.00	66	2.45	2.70	2.00	3.35	4.35	2.55	4.75	2.57
Dec.	2.00	2.00	2.00	66	2.45	2.70	2.00	3.35	4.35	2.50	4.75	2.57
Jan. 1923	2.04	2.04	2.00	66	2.49	2.70	2.00	3.35	4.35	2.50	4.75	2.59
Yearly averages:												
1913	1.42	1.41	1.38	79¾	1.50	1.70	1.39	2.20	3.28	1.68	3.56	1.72
1914	1.16	1.14	1.15	80	1.37	1.57	1.17	1.89	2.87	1.38	3.35	1.52
1915	1.30	1.29	1.31	79¼	1.48	1.66	1.27	1.93	3.85	1.49	3.19	1.63
1916	2.50	2.82	2.48	70⅞	2.45	2.53	2.34	3.06	4.85	2.99	5.34	2.80
1917	3.66	5.21	3.49	52⅛	3.48	3.58	3.95	6.29	8.21	6.15	7.85	4.46
1918	2.99	3.24	2.89	51⅛	3.25	3.50	2.89	4.98	6.24	4.23	7.78	3.79
1919	2.53	2.71	2.43	56¾	3.06	3.31	2.51	4.43	5.78	3.63	7.08	3.32
1920	2.99	3.20	2.99	55⅝	3.40	3.67	3.00	5.85	7.39	5.06	7.29	3.63
1921	1.07	1.96	1.89	63¾	2.77	2.98	1.96	3.54	4.57	2.74	5.83	2.69
1922	1.70	1.71	1.70	69½	2.31	2.51	1.72	3.19	4.19	2.43	4.73	2.31

SEMIFINISHED STEEL

The regular first quarter business in billets and sheet bars was done in December at $36.50, Pittsburgh or Youngstown. The market began to stiffen early in January advancing one dollar, and later another dollar was added. The month closed with the market quotable at $38.50, but with some doubt whether tonnage could actually be purchased at the figure, and with some mills definitely expecting that their next sales would be at $40.00.

Rods sold in December at $45.00 to $47.50 according to tonnage, etc., while there was a sharp advance during January, the month closing with no sellers at under $50.00, even the leading interest, well sold up, being at approximatey that level.

BARS, SHAPES AND PLATES

There was heavy buying of merchant steel bars in January, producing a very well sold up condition of mills. In plates there was a heavy turnover in car plates, a moderate turnover in plates for tanks and even a moderate amount of business in plates for ocean and lake vessels. In shapes there was more movement than in December. Indpendents quite generally advanced their price on bars, shapes and plates from 2.00c to 2.10c early in January. The Steel Corporation followed definitely on shapes and plates. On bars it made no official advance but it has quoted 2.10c, and the market on the three heavy rolled products may be regarded as established at 2.10c, an advance of $2.00 a ton, whereas in October it was a common prediction that whatever the rest of the steel list might do these products would certainly be below 2.00c before the end of the year.

TUBULAR GOODS

Pressure for delivery of merchant steel pipe continued right through the Winter. Consumption did not decline seasonally, while jobbers endeavored to replenish stocks, apparently without success. Prospects for consumption in the oil fields improved, and the Sinclair company came out with inquiries for about 750 miles of 8, 10 and 12-inch line pipe, representing in the neighborhood of 50,000 tons. February 1st independents began advancing prices, lists showing two points on merchant pipe, three points on line pipe and $6.00 a net ton on oil country goods. They had been expecting the National Tube Company to take the lead in an advance they considered overdue.

IMPORTANT STEEL PRICE CHANGES

At end of 1920 prices of independent steel producers had declined to Industrial Board schedule of Mar. 21, 1919, to which U. S. Steel Corporation had meanwhile adhered. These prices are given under date of Jan. 1, 1921, subsequent changes being in open market. Only the more important changes are listed.

BARS.

Jan. 1, 1921	2.35	Dec. 19	1.50
Feb. 11	2.00	Feb. 18, 1922	1.40
April 13	2.10	Mar. 29	1.50
June 24	2.00	May 17	1.60
July 5	1.90	July 26	1.70
July 26	1.75	Aug. 9	1.80
Sept. 9, 1921	1.65	Aug. 25	1.90
Sept. 27	1.60	Sept. 27,	2.00
Nov. 9	1.55	Jan. 31, 1923	2.10

PLATES

Jan. 1, 1921	2.65	Sept. 9	1.65
Feb. 10	2.40	Sept. 27	1.60
Feb. 17	2.25	Oct. 27	1.55
Feb. 23	2.10	Nov. 9	1.50
April 13	2.20	Feb. 18, 1922	1.40
June 10	2.00	April 5	1.50
July 15	1.90	May 25	1.60
July 26	1.85	July 26	1.70
Aug. 25, 1921	1.80	Aug. 9	1.80
Sept. 2	1.75	Aug. 25	2.00
		Jan. 19, 1923	2.10

SHAPES

Jan. 1, 1921	2.45	Sept. 9	1.70
Feb. 11	2.25	Sept. 26	1.65
Feb. 17	2.20	Sept. 27	1.60
Feb. 28	2.10	Dec. 21	1.50
April 13	2.20	Feb. 18, 1922	1.40
June 24	2.00	Mar. 9	1.50
July 22	1.90	May 25	1.60
July 26	1.85	July 26	1.70
Aug. 25, 1921	1.80	Aug. 9	1.80
Sept. 2	1.75	Aug. 25	2.00
		Jan. 19, 1923	2.10

STEEL PIPE

Jan. 1, 1921	57½%	Sept. 16	68½%
Mar. 24	58½%	Dec. 16,	71%
April 7	59½%	Aug. 23, 1922	68%
April 13	62½%	Oct. 19, 1922	66%
July 9, 1921	64½%	Feb. 3, 1923	64%

WIRE NAILS

Jan. 1, 1921	3.25	Dec. 9	2.75
Feb. 17	3.10	Dec. 21	2.50
Mar. 4	3.00	Feb. 21, 1922	2.40
April 13	3.25	Aug. 30	2.60
June 1	3.00	Sept. 27,	2.70
July 9, 1921	2.75	Feb. 1, 1923	2.80
Sept. 12	2.90		

BLACK SHEETS

Jan. 1, 1921	4.35	Aug. 1	3.00
Feb. 11	4.15	Aug. 25	2.75
Mar. 8	4.00	Sept. 22	3.00
Mar. 17	3.85	Nov. 1	2.90
April 13	4.00	Nov. 25	3.00
July 5	3.50	April 7, 1922	3.15
July 26, 1921	3.25	Aug. 14	3.35

TIN PLATE

Jan. 1, 1921	7.00	Sept. 15	5.00
April 13,	6.25	Sept. 19	4.75
June 7	6.00	Mar. 21, 1922	4.60
June 14	5.75	April 5	4.65
Aug. 1, 1921	5.25	April 24	4.70
		May 17	4.75

BLUE ANNEALED SHEETS

Jan. 1, 1921	3.55	Aug. 16	2.25
Feb. 11	3.35	Sept. 22	2.50
Feb. 16	3.20	Nov. 1	2.25
Mar. 8	3.00	April 7, 1922	2.40
April 13	3.10	Aug. 14	2.50
June 10	2.90	Sept. 20,	2.60
July 6, 1921	2.65	Nov. 23,	2.50
Aug. 2	2.40		

GALVANIZED SHEETS

Jan. 1, 1921	5.70	July 22	4.25
Feb. 11	5.55	Aug. 2	4.00
Feb. 16	5.35	Aug. 25	3.75
Feb. 24	5.25	Sept. 22	4.00
Mar. 8	5.10	Nov. 1	3.90
Mar. 17	5.00	Nov. 25	4.00
June 22	4.75	April 7, 1922	4.15
July 5, 1921	4.50	Aug. 14,	4.35

SHEETS AND TIN PLATES

Tin plate production in January was about 150,000 gross tons or about 3,500,000 base boxes, in all probability considerably more than was ever before produced in January. That is sufficient to show the state of trade. Record production was 1,512,000 tons, in 1917, while last year's production was about 1,400,000 tons, with decreased exports more than covering the deficit from the record output. All predictions have been that this year would make a new record in domestic consumption by a wide margin. The $4.75 price is unsatisfactory to independent producers and buyers evidently have confidence in it. Buying has been chiefly in definite orders rather than in blanket contracts subject to monthly specifications and the mills have been able to limber up earlier in the year than usual.

The leading interest entered January with sheets sold up well beyond April 1st, and closed the month with practically all of the half year's prospective output sold. Independent sheet mills made a remarkable record in December, selling almost twice as much as they produced, while operating at 80% of theoretical full. In January their sales were nearly as large while production was somewhat heavier. Early in the month predictions appeared that there would shortly be an advance of $3 a ton in black and galvanized, to 3.50c and 4.50c respectively. While the prediction was not realized during the month a number of producers withdrew from the market. The policy among independents has seemed to be to fill up for first quarter and await higher prices for second quarter. Blue annealed has been in process of advancing from 2.50c there being not a few sales at 2.60c. Automobile sheets remain quotable at 4.70c to 5.00c.

FABRICATED STEEL

Fabricated steel orders verbally reported in January amounted to about 235,000 tons, being the largest contracts for a single month ever recorded. Current orders continue phenomenally heavy. It is estimated that 300,000 tons of structural work are pending in the east and fully 200,000 tons in the central west.

No export orders were reported in January but may be included in reports made to the Government which returns will be available in the third week of February. Oil companies continued to

Allegheny Steel
and
Allegheny Iron

SHEETS BOILER TUBES
PLATES WASHERS
STEEL CASTINGS
Hot and Cold Pressed Stampings

ALLEGHENY STEEL COMPANY
PITTSBURGH, PA.

SOLICITING AGENTS
501 Fifth Ave., New York 1436 Dime Bank Bldg., Detroit, Mich.
Steel Sales Corporation, 129 South Jefferson Street, Chicago.

place heavy orders for storage tanks, the total for the month being about 100,000 tons.

Among the largest individual orders placed for buildings were 18,000 tons for the Equitable Building on Seventh Ave., and 11,000 tons for the Roosevelt Hotel, in New York City. Railroads placed a few orders for bridge work, but the tonnage was not large. It is understood, however, that a large tonnage is on railroad engineers' boards and probably will be placed later in the year.

The Central Railroad of N. J. has been authorized by the War Department to build a bridge over Newark Bay. The plans for this structure require about 50,000 tons for steel. The Delaware River bridge super-structure, which is still pending will require 40,000 tons of steel.

In the Chicago district the largest single contract pending is 16,000 tons for the Stevens Hotel and viaducts for the Union Station in that city require about 6,000 tons of shapes.

According to revised estimates again made by the Department of Commerce, the total monthly capacity of fabricated structural steel shops is now 250,000 tons. Revisions were also made of the monthly capacity of shops since 1913 to 1923 which are shown in an accompanying table. Upon this basis fabricated steel orders taken in January this year were very close to total shop capacity, if 10% be allowed for sales not verbally reported. Never in the history of the industry has shop capacity been fully sold in a single month, nor in any other period.

The following table shows actual sales reported to the Government from April to December 1922 inclusive and estimated total bookings by the month for the same period:

	Actual Tonnage Booked	Per cent. of Capacity	Estimated Total Bookings
April	198,529	89.9	224,800
May	180,558	81.8	204,500
June	162,139	73.4	183,500
July	152,023	68.9	172,300
August	150,700	68.3	170,800
September	141,418	64.1	160,300
October	126,535	57.3	143,300
November	106,315*	48.4	121,000
December	125,479**	58.3	145,800

*Two firms missing out of 158.

**From 141 firms who reported in time for this report.

The following table shows yearly figures of structural steel sales, based on new estimated capacities as the result of the special survey of the industry recently conducted by the Bureau of Census, and the percentage of sales to shop capacity as reported by the Bridge Builders and Structural Society to April 1922, and by the reports to the Bureau of the Census since then:

	Estimated Monthly Tonnage Capacity	Per cent. of Sales to Capacity	Estimated Tonnage Sales
1913	190,000	50.3	1,146,300
1914	191,000	50.4	1,155,200
1915	194,000	70.0	1,629,600
1916	200,000	69.4	1,665,600
1917	207,000	60.2	1,495,400
1918	218,000	55.6	1,454,500
1919	224,000	53.4	1,435,400
1920	232,000	53.8	1,496,500
1921	237,000	35.1	997,200
1922	250,000	64.3	1,929,400

The following table shows the percentage of fabricated steel orders to total shop capacity, sold by fabricators throughout the country each month from the beginning of 1917 to end of March, 1922 as reported by the Bridge Builders and Structural Society. Subsequent orders reported by the Department of Commerce, based upon revised monthly capacity.

	1922	1921	1920	1919	1918	1917
Jan.	40%	18%	75%	12%	53%	61½
Feb.	43½	14	95	12½	55½	59
Mar.	77	29	83½	17½	47	68
April	89.9	31	68	24½	64	61
May	81.8	28	61½	49	60	56½
June	73.4	37	50	65	56	47½
July	68.9	33½	50	74	116½	41½
Aug.	68.3	33	40	78½	57	38
Sept.	64.1	48	43	78½	60	29
Oct.	57.3	54	25½	77½	43	61½
Nov.	48.4	55	27½	69	27	77
Dec.	58.3	40	26	85	29	114
Av.	64.2	35	53¾	53½	55½	59½

The following table, prepared by the Government, shows the total monthly capacity for each year as reported by 143 firms, representing about 83% of the present estimated capacity of the United States, and the increase over the preceding year and over 1913:

	Total monthly capacity	Increase over previous year	Increase over 1913
1913	163,415	.....	.....
1914	164,265	850	850
1915	166,500	2,235	3,085

	Total monthly capacity	Increase over previous year	Increase over 1913
1916	170,900	4,400	7,485
1917	175,935	5,035	12,520
1918	185,060	9,125	21,645
1919	188,800	3,740	25,385
1920	194,675	5,875	31,260
1921	197,575	2,900	34,160
1922	208,440	10,865	45,025

SCRAP

Fairly heavy buying of steel mill scrap by eastern mills developed early in January and this, coming when New England had bad weather and could not ship normal tonnages, readily advanced the market $2.00 or $3.00. Possibility of shipping scrap to Pittsburgh disappeared and the market there advanced somewhat even though there was hardly any support in buying.

From the long range view, scrap is likely to command higher prices relative to pig iron than in the past. There has been a steady development, year by year, of more scrap being consumed in steel making relative to pig iron, while the large quantities of scrap left over from the war have prevented the influence from asserting itself. A simple study of production of pig iron and steel in 1922 indicates that the steel mills and steel foundries consumed in that year between 6,000,000 and 7,000,000 tons of scrap which did not originate in their own plants, this being partly industrial scrap and partly old material. Not long before the war the quantity was running nearer a million tons.

IRON AND STEEL SCRAP PRICES

	Heavy melting steel. Pittsb.,	Phila.,	Chic.	No. 1 cast. Pitts.	Chic.*
Jan., '22	14.67	11.45	11.70	16.60	12.75
Feb. ...	14.25	11.50	11.75	16.25	12.80
Mar. ...	25.35	11.75	12.50	16.25	13.50
April ..	16.60	14.25	13.80	17.25	14.70
May ...	17.25	14.70	14.95	18.25	15.80
June ...	17.25	14.50	14.80	18.60	15.50
July ...	16.85	14.40	15.40	19.25	16.00
Aug. ...	17.45	14.75	16.00	19.35	17.25
Sept. ..	20.00	17.00	17.50	21.75	18.60
Oct. ...	21.00	18.35	18.65	24.00	19.60
Nov. ...	20.50	16.65	17.60	23.20	18.50
Dec. ...	20.40	16.70	17.50	22.75	18.35
Year ..	17.63	14.67	15.18	19.46	16.11
Jan., '23	22.00	20.85	19.30	23.50	20.40

* Per net ton.

FERRO-ALLOYS

It is estimated that sales of 25,000 tons of ferro-manganese were made in the first ten days of January. Most of these sales were made at $100 c. i. f. Atlantic ports, duty paid for British alloy, but a moderate tonnage was also disposed of at $102.50 c. i. f. Atlantic ports. Probably 3,000 tons were sold at the latter price, the advance of $2.50 per ton having been made by foreign manufacturers on January 5th. Another advance of $5.00 a ton on British ferro-manganese was announced by cable January 12th. Very little alloy has been sold since that time. Only a few carloads are now being taken by belated buyers.

Most all of the large American consumers covered requirements for the next six months to one year at $100 or less Atlantic ports, the largest transactions being made late in 1922. Domestic manufacturers of ferro-manganese naturally took advantage of higher prices for the imported alloy. At the close of January a few small sales of domestic 80% alloy were made at $107.50 Atlantic seabord equivalent to $112.29 delivered Pittsburgh.

Spiegeleisen continued quite active intermittently in January although most of the large consumers had covered requirements the latter part of last year for shipment over the first six months and the whole of 1923. The largest single transaction was 10,000 tons which is reported to have been sold by the N. J. Zinc Co. to the Bethlehem Steel Corporation for shipment to the Lackawana Steel Co., plant at Buffalo. The sale is understood to have been made at $34.00 per ton for shipment over the remainder of this year. Since that time the market has shown a stronger tone and most of the sales running from 50 to 100 tons each were made at $37.00 for 19% to 21% and at $36.00 for 16% to 19% at the furnace. British spiegeleisen was also stronger advancing from $35.00 to $38.00 duty paid Atlantic ports for relatively small lots.

Almost all of the large consumers of ferro-silicon covered their 1923 requirements the latter part of last year. A few supplementary transactions were made in the first half of January when the largest producer practially withdrew from the market. Single car lots, however, continue to be sold at $85.00 to

$87.50 and a few exceptional sales are reported to have been made at $82.50 per ton delivered. Today, however, there are few if any sellers under $87.50 per ton delivered.

On January 1st, 1923, the Electro Metals, Ltd., of Welland, Ont. was taken over by the Electro-Metallurgical Co. Since that time some importations of Canadian 50% ferro-silicon have been made for which $87.50 delivered has been charged. Sales of 14% to 16% were made at $48.00 delivered. A few small lots of British ferro-silicon were sold at $85.00 per ton duty paid. Shipments are now being made against contracts but new buying is light.

Activity in ferro-chrome was notable in December and early January but practically all large contracts for shipment over the first half and whole of 1923 have now been consummated. Present buying is confined to small lots. It is understood that the large lots of ferro-chrome were disposed of at considerably less than the prices now asked for small lots which are 12c to 13c per pound for 6% to 8% carbon, 13c to 14c for 4% to 6% carbon and 28c for 1% to 2% alloy, all of the alloy containing 60% to 70% chromium.

Ferro-vanadium has been in moderate demand and the market is now quite with prices unchanged for domestic shipment. One sale of 50 tons of vanadium content of ferro-vanadium was made for export to Great Britain, being the first important export trade in over a year.

Manganese ore has advanced in price as a result of one or two large sales of Brazilian and Indian ore reported to have been made at 31c per unit c. i. f. Philadelphia. Total transactions were 45,000 tons of which 40,000 tons were taken by an eastern Pennslyania furnace company. Subsequently a sale of 1,000 tons of Indian ore was made at 33c per unit for February shipment. The large sale made in Philadelphia is understood to be Brazilian ore, 46% to 48%, shipments to begin in April running through to December. It is understood that the same buyers may take 20,000 tons additional. The demand for manganese ore was active from European consumers as well as from those in the United States, Germany, France and England competed keenly for prompt and future shipments of Brazilian as well as Indian ore. About the middle of the month some sales were made at 29½ to 30c per unit, c. i. f. North Atlantic ports. Today the market is firm at 33c per unit.

Moderate sales of tungsten ore were made during the month at $8.00 per unit. This was for spot scheelite. Holders of wolframite continue to hold at $8.00 per unit. There is very little free tungsten ore now in stock here and as it would now be impossible to replace current sales by importations the undertone of the market is firmer. The largest interest is asking $8.00 to $9.00 per unit for good quality ore f. o. b. cars New York. Ferro-tungsten is held at 90 to 92% per pound and tungsten metal powder at 95c to $1.00 per pound.

Chrome Indian ore has been advanced to $19.50 per ton c. i. f. North Atlantic ports. The higher price is attributed to an advance in freight rates and higher rupees exchange. New Caledonian ore is quotable at $26.00 per ton.

COAL

Reaction from the high prices on Pennsylvania coals, ruling in the first few weeks of the year, took place during January. This condition also holds true of the West Virginia coals, particularly those shipped over the tidewater piers for New England delivery, which are held up by congestion at discharging ports. In the inland sections as well as others, the outstanding feature of the last week in January was the general tendency on the part of buyers to hold off pending the settlement of the wage scale conference between miners and oprators which was held in New York.

The operators and United Mine Workers' officials attending this conference were those from Illinois, Indiana, and a part of Ohio, and on January 24th they reached an agreement to continue the present basis of wages in their respective fields for another year beginning April 1st this year. This means that current rates of wages in those fields will continue until March 31, 1924 at least, and since the conference, oper-

ators in the Pittsburgh region and Central Pennsylvania have also subscribed to the same basic wage scale.

Thus, prospects of strikes in any of the important bituminous fields this year, seem to have vanished into thin air, and with them have disappeared the prospects of future advances in the prices of bituminous coal. Throughout the country, the settlement of the wage question seems to have been reflected in the coal markets. Consumers apparently have profited in the matter of spot purchases by awaiting the outcome of the conference, and are now inclined to wait for the prices to fall even lower before buying in any substantial quantities. Prices generally are at least $1.00 per ton at the mines lower than they were in the first week in January, but consumers are still very conservative in the matter of buying.

Cheaper coal prices seem to be indicated in the present outlook, but with declining prices, the market should improve in respect to production and demand. Lower prices in many sections are anticipated because of the fact that, with consumer demand only moderate, non-union producing fields can turn out cheaper coal than the union fields by reducing their wages and giving their men steady employment, while coal mined at the high union rate of wages will not enjoy the same advantages. For these reasons, coal operators and wholesalers look for improved demand because of the cheaper prices which apparently will be ruling in the Spring and Summer months. This undoubtedly also will affect the importation of British coal, which, it is estimated, is coming to the United States to the amount of at least 500,000 tons for January, February and March. Delivery of the bulk of this coal will be made in New England and New York harbor.

From now on however, declining prices on high grade coals of our own reaching the seaboard, should undersell the British coals and crowd them out of the market. In fact, some improvement in United States coal exports might also be expected.

Another feature that has had a softening influence on the market is the continuation of fairly high temperatures for this season of the year throughout the country. At practically no point has a maximum quantity of coal been consumed for heating purposes, and the unusually warm days that have occurred, have given consumers the feeling that they do not need to carry large stocks. In the northwestern sections, dealers are unwilling to buy in the face of present conditions, and it is estimated that 1,850,000 tons of bituminous coal were on hand at the docks at the head of the lakes in the last week in January. Coal is moving slowly in New England because of bad roads and the congestion of coal in vessels in Boston harbor.

Car shortages on the principal railroads in the Pennsylvania bituminous regions are still acute, but those sections are mining adequate supplies to meet all requirements nevertheless. One month ago, spot prices on pool 9 coal at the mines ranged from $5.75 to $6.25, whereas it is now quoted at $4.50 to $5.00. Pool 10 coal in early January was $5.25 to $6.00, as compared with current quotations of $3.50 to $4.25. Other Pennsylvania coals are being quoted about as follows: Pool 1, $5.25 to $5.50; pool 71, $5.00 to $5.25 and pool 11, $3.25 to $3.50. Prices of pool 1 West Virginia coal at the Hampton Roads piers have declined to around $7.00 gross ton as compared with $8.75 to $9.00 on January 1st.

An Engineering Ambassador—At the dinner recently given by the American Engineering Council some four score American engineers had the unique pleasure of listening to the first speech ever delivered by a foreign ambassador who is by profession an engineer. Prince Castani, the diplomatic representative of the new Fascisti government in Italy, belied neither his training nor his present calling in his clear expression of the place the engineer plays or should play in international comity. The expedition that has moved into the Franco-German border, into the industrial heart of Germany, is a plain token of what engineering means in the relations of nations. Is there any doubt that those relations would be better understood if discussed from engineering viewpoint by engineers who, in spite of difference of tongue, talk the same language? That is the lesson the Italian ambassador sought to teach in his maiden speech. May he be but the first of a long line.—**Engineering News-Record.**

EXPORTS OF IRON AND STEEL PRODUCTS FROM THE U. S.

Value of tonnage and non-tonnage.

	*1922	1921	1920
Jan.	$15,141,083	$137,803,395	$70,226,441
Feb.	12,950,603	101,205,061	71,893,929
Mar.	18,836,718	67,870,739	94,784,845
April	17,559,081	49,609,605	87,496,206
May	17,749,475	41,365,886	99,393,536
June	18,649,816	39,975,035	88,787,349
July	14,611,858	27,639,787	92,147,844
Aug.	13,963,749	27,647,816	89,065,536
Sept.	14,380,851	26,740,228	87,556,292
Oct.	14,626,411	29,706,437	103,546,679
Nov.	14,249,434	28,543,142	104,827,626
Dec.	16,668,116	29,502,448	123,178,579

* Excluding machinery.

1922..	$ 188,841,433	1916..	$871,372,322
1921..	607,427,146	1915..	390,897,123
1920..	1,112,904,802	1914..	199,861,684
1919..	968,575,142	1913..	293,934,160
1918..	1,035,291,736	1912..	289,128,420
1917..	1,240,984,979	1911..	249,656,411

Tonnage Lines.

(Gross tons.)

	1922	1921	1920	1919
Jan.	160,920	547,394	333,601	360,456
Feb.	133,975	393,328	308,185	234,793
Mar.	208,843	230,635	417,216	344,500
April	198,830	162,592	395,120	408,204
May	230,062	104,072	420,359	447,050
June	212,295	119,081	402,707	544,580
July	157,169	86,523	458,866	287,823
Aug.	145,640	75,827	431,484	396,679
Sept.	129,475	95,169	409,200	364,504
Oct.	132,924	106,582	452,015	302,456
Nov.	127,782	122,290	434,297	295,045
Dec.	150,170	134,415	498,765	254,676

Yearly totals.

1922	1,986,297	1916	6,105,881
1921	2,213,042	1915	3,532,606
1920	4,961,851	1914	1,549,554
1919	4,239,837	1913	2,745,535
1918	5,338,037	1912	2,947,596
1917	6,441,760	1911	2,187,724

IMPORTS OF IRON ORE INTO THE UNITED STATES.

	1922	1921	1920	1919
Jan.	19,433	82,424	88,881	33,251
Feb.	10,016	47,466	100,105	28,039
Mar.	12,013	26,483	108,643	54,992
April	2,710	35,645	88,670	24,195
May	29,707	58,704	103,325	28,164
June	133,817	8,424	104,364	30,605
July	166,711	7,040	28,846	23,347
Aug.	160,173	24,570	174,169	32,117
Sept.	127,838	4,954	73,675	48,478
Oct.	.....	5,838	141,026	30,386
Nov.	.....	12,065	139,854	89,933
Dec.	.....	2,155	117,898	52,954

Yearly totals.

1921	315,768	1915	1,341,281
1920	1,273,456	1914	1,350,588
1919	476,461	1913	2,594,770
1918	787,468	1912	2,104,576
1917	971,663	1911	1,811,732
1916	1,325,736		

BITUMINOUS COAL PRODUCTION

(Net tons of 2,000 lbs.)

	1923.	1922.	1921.
Jan. ...	49,400,000	37,604,000	40,270,000
Feb. ...	.....	40,980,000	30,851,000
Mar. ...	.....	50,167,000	30,392,000
April ..	.....	15,700,000	27,553,000
May ...	.....	20,290,000	33,330,000
June ...	.....	22,309,000	33,896,000
July ...	.....	17,003,000	30,385,000
Aug. ...	.....	27,358,000	34,538,000
Sept. ..	.....	39,510,000	35,127,000
Oct. ...	.....	45,141,000	43,733,000
Nov. ...	.....	45,303,000	36,020,000
Dec. ...	.....	44,500,000	30,975,000
Total	.....	405,944,000	407,000,000

CONNELLSVILE COKE.

Spot for prompt, per net ton f.o.b. ovens.

	— Furnace —			— Foundry —		
	1923.	1922.	1921.	1923.	1922.	1921
Jan.	8.30	2.85	5.10	9.25	4.00	6.75
Feb.	....	3.10	4.80	....	4.15	6.15
Mar.	....	3.38	4.43	....	4.50	5.63
Apr.	....	4.44	3.60	....	5.21	5.15
May	....	6.50	3.40	....	6.75	5.10
June	....	7.50	3.12	....	7.85	4.67
July	....	11.35	2.95	....	11.70	4.20
Aug.	....	13.35	2.95	....	15.00	4.20
Sept.	....	11.50	3.26	....	13.25	4.34
Oct.	....	9.70	3.35	....	11.90	4.40
Nov.	....	7.35	3.15	....	8.70	4.17
Dec.	....	7.75	2.90	....	8.15	4.00
Av.	....	7.40	3.58	....	8.43	4.90

BRITISH IRON AND STEEL OUTPUT.

Pig Iron—(Gross tons).

	1922	1921	1920
Jan.	288,000	642,100	665,000
Feb.	300,100	463,600	645,000
March	389,800	386,000	699,000
April	394,300	60,300	671,000
May	407,900	13,600	738,000
June	369,200	800	726,000
July	399,100	10,200	750,600
Aug.	411,700	94,200	752,400
Sept.	430,300	158,300	741,000
Oct.	481,500	235,500	533,200
Nov.	493,900	271,800	403,200
Dec.	533,700	275,000	682,500
Total ...	4,899,500	2,611,400	8,007,900

Steel Ingots and Castings.

	1922	1921	1920
Jan.	327,500	493,400	754,000
Feb.	418,800	483,500	798,000
March	549,400	359,100	840,000
April	404,200	70,600	794,000
May	462,300	5,700	846,000
June	400,200	2,700	845,000
July	473,100	117,200	789,900
Aug.	520,800	434,100	709,200
Sept.	555,900	429,300	884,700
Oct.	565,200	405,400	544,300
Nov.	600,800	442,800	505,100
Dec.	546,100	381,000	746,600
Total ...	5,831,900	3,624,800	9,056,800

COPPER

Sales of upward of 100,000,000 pounds of copper were made in January, more than half of which it is understood was placed under contract in the last ten days of the month. Prior to that time sales on both domestic and foreign account were relatively light. Even during the active buying by domestic consumers in the latter part of the month only small orders were taken abroad by the Copper Export Association and local sales to exporters were also of small proportion.

It was quite evident to manufacturers of wire and rollers of copper and brass products that there was still a number of important contracts under the surface when the year opened, as public utility companies and power companies, mainly in the west, had not fully covered their requirements during the active buying in December. It was thought improbable, however, that these contracts would be placed before February but when it beame generally known that such business was pending, consumers were stimulated to action and both wire drawers and rolling mills, also brass founders, anticipated orders for wrought copper and brass by purchasing electrolytic and lake copper when the market seemed to be dragging.

The result was that practically all important consumers came into the market together after a few large consumers, forehanded enough to take advantage of concessions from the 14¾c delivered for electrolytic, had placed orders. For a few days the market was feverish and excited and prices advanced ¼c to 15.00c a pound, under active buying. Apparently small thought was given to the statistical position of producers. The general impression was that surplus stocks of refined copper had been reduced more than proved to be the case as revealed by Government statistics. Orders were placed mainly for March, April and May, although a number of small orders were placed for February shipment.

Many small buyers followed in the wake of large consumers but the buying movement came to an end almost as suddenly as it began when it was realized that foreign consumers were not supporting the market. It is quite evident that if European consumption is not maintained at the average rate of last year the present rate of production in this country is more than domestic consumers can absorb although domestic consumption is heavy, the heaviest since the war, and much larger than average monthly consumption prior to the war.

The indication is that deliveries into domestic consumption in January were about 105,000,000 pounds and exports were not over 40,000,000 pounds or total deliveries, 145,000,000 pounds. On the other hand output of refined copper during January was about 165,000,000 pounds. January output of smelters in the United States was in the neighborhood of 110,000,000 pounds, while importations were somewhere between 50,000,000 and 60,000,000 pounds. It is thus evident that refined production exceeded total deliveries by at least 20,000,000 pounds and that the output of blister copper in the United States and South America was almost as much as the refined output indicating no important reduction in blister stocks, even after making allowance for the fact that some of the imported copper is already refined.

It is estimated that sruplus stocks in the hands of producers on February 1st, were only slightly less than 300,000,000

COPPER PRICES IN JANUARY

	— New York —			— London —	
Day	Lake.	Electro.	Cast.	Stand. £ s. d.	Electro. £ s. d.
2	14.87½	14.62½	14.25	64 12 6	71 15 0
3	14.87½	14.62½	14.25	64 7 6	71 10 0
4	14.87½	14.62½	14.25	64 10 0	71 10 0
5	14.87½	14.62½	14.25	64 5 0	71 10 0
8	14.87½	14.62½	14.25	64 7 6	71 10 0
9	14.87½	14.62½	14.25	64 7 6	71 10 0
10	14.87½	14.62½	14.25	64 5 0	71 5 0
11	14.87½	14.62½	14.25	64 5 0	71 0 0
12	14.87½	14.62½	14.25	64 2 6	70 15 0
15	14.87½	14.62½	14.25	64 0 0	70 12 6
16	14.87½	14.62½	14.25	63 10 0	70 7 6
17	14.87½	14.62½	14.25	63 7 6	70 7 6
18	14.87½	14.55	14.25	63 10 0	70 12 6
19	14.87½	14.55	14.25	63 10 0	70 15 0
22	14.87½	14.55	14.25	64 0 0	71 5 0
23	14.93¾	14.62½	14.35	64 15 0	71 10 0
24	14.93¾	14.62½	14.35	64 15 0	71 10 0
25	14.93¾	14.67½	14.35	65 7 6	71 15 0
26	15.00	14.75	14.40	65 12 6	72 5 0
29	15.12½	14.87½	14.50	66 2 6	72 10 0
30	15.12½	14.87½	14.50	65 17 6	73 0 0
31	15.12½	14.87½	14.50	65 7 6	72 5 0
High ...	15.12½	14.87½	14.50	66 2 6	73 0 0
Low	14.75	14.50	14.25	63 7 6	70 7 6
Average .	14.92	14.66	14.30	64 9 11	71 8 2

pounds against stocks of 277,000,000 pounds at the end of 1922 as reported by the Geological Survey.

It is quite evident that whatever strength there is in the market is derived mainly from the fact that domestic consumption is heavy while on the other hand the weak point is relatively small buying by Europe. The latter is due mainly to the unsettled political and industrial situation as a result of the Franco-German tension and critical conditions in the Near East.

The European market for American electrolytic fluctuated within twenty points during the month, rising and falling with sterling exchange. Business was actually done between 14⅞c. and 15.20c. c. i. f. European points equivalent to 14.67½c and 15c f. a. s. New York but very little if any business was done with local exporters over 14.90c f. a. s. and this was slightly above the price asked when the month closed.

It is pointed out that electrolytic at 15c. delivered today is at the highest level attained since October 1920. In the latter year the average price of electrolytic copper was 17½c. there having been a gradual reduction from the high prices prevailing during the war years. The year 1920 ended with electrolytic selling in the neighborhood of 13½c. a pound; today electrolytic is selling at a higher average price—with the exception of 1920 and the war years—than in any year prior to the war with the exception of 1913, 1912, 1907, 1906 and 1905.

The average price for electrolytic copper in the ten years immediately preceding the war was 15.36c. The average price for the 20 years ended December 31st, 1922, including the war years of course, was 17.15c. The average price for electrolytic in 1922 was 15.56c. per pound. It would seem that most of the important copper companies today can make a profit at 15c a pound delivered notwithstanding the higher labor costs and high transportation charges. In the last two or three months there has been no complaint about lack of miners but with the opening of Spring there may again be an exodus of common labor from the copper sections which might be regarded favorably rather than otherwise as the tendency now is to overproduce especially as the output in South America now is very heavy.

Dallas Brass & Copper Co.

Manufacturers of

Brass and Copper Products

Prompt Mill Deliveries

Prompt Shipments From Warehouses

CLEVELAND CHICAGO DETROIT

COPPER AND BRASS PRODUCTS

Manufacturers of wrought copper and brass are much encouraged by the increased volume of business secured in the last ten days of January. Prior to to that time business fell off considerably but as the market for copper strengthened buyers of finished, drawn and rolled copper and brass placed larger orders. The larger buying was preceded by many inquiries but it was not until there were signs of higher prices for unwrought copper that public utilities, power companies, electric equipment manufacturers and telephone and telegraph companies were stimulated to decisive action.

The buying was very general throughout the country and most of the consumers came into the market simultaneously. The effect was most pronounced and was largely responsible for the sharp advance in unwrought copper as well as for finished material that took place the latter part of January. As February begins there is less activity but a number of small orders continue to be received.

Wire drawers and copper and brass mills have capacity of various departments sold for several weeks to several months, making manufacturers more or less independent and indifferent about taking on important orders for February shipment. The prospect seems to be that within a few weeks at least another buying movement will be precipitated unless consumers take advantage of the temporary lulls to place orders.

On January 29th the American Brass Company advanced prices of copper sheets, copper in rolls, copper bottoms and copper rods round, ¼c. a pound and two days later an advance of ¼c. a pound was also made on prices of finished brass products with the exception of tubing. The latter, however, was advanced ¼c. on Feb. 2nd. Prices of copper wire and copper rods were advanced ⅜c per pound during the month. There was also an advance of ¼c a pound in bronze sheets, wire, and rods but nickel silver, as a result of the lower prices for nickel, was reduced 1c a pound.

Early in January, while the general market for finished products continued quiet, there was an improvement in the demand for copper bottoms and brass tubing, which articles had been dull for six or seven weeks. In the first ten

LAKE COPPER PRICES

Average prices in New York

	1923.	1922.	1921.	1920.	1919.
Jan.	14.92	13.76	13.53	19.76	21.75
Feb.	.....	13.24	13.33	19.09	17.87
Mar.	.....	13.03	12.58	18.87	15.48
April	.....	12.91	12.89	19.05	15.73
May	.....	13.42	13.12	18.85	16.30
June	.....	13.97	13.04	18.55	17.93
July	.....	14.07	12.75	18.83	22.08
Aug.	.....	14.09	12.11	18.72	22.96
Sept.	.....	14.19	12.23	18.53	22.48
Oct.	.....	14.16	13.01	16.87	21.94
Nov.	.....	14.07	13.30	14.97	20.49
Dec.	.....	14.46	13.80	14.01	18.88
Average	.....	13.78	12.98	18.01	19.49

Annual Averages.

1918	24.68	1913	15.70
1917	29.18	1912	16.58
1916	28.17	1911	12.71
1915	17.64	1910	13.12
1914	13.61	1909	13.39

ELECTROLYTIC COPPER PRICES

Average prices in New York

	1923.	1922.	1921.	1920.	1919.
Jan.	14.66	13.60	12.85	19.02	20.00
Feb.	.....	12.97	12.79	18.61	16.91
Mar.	.....	12.84	12.23	18.36	15.01
April	.....	12.71	12.54	18.54	15.40
May	.....	13.29	12.83	18.28	16.01
June	.....	13.71	12.76	17.97	17.65
July	.....	13.90	12.35	18.61	21.71
Aug.	.....	13.96	11.76	18.44	22.22
Sept.	.....	13.88	12.10	18.04	21.95
Oct.	.....	13.80	12.75	16.30	21.50
Nov.	.....	13.79	13.16	14.39	19.96
Dec.	.....	14.22	13.67	13.48	18.48
Average	.....	13.55	12.65	17.50	18.90

Annual Averages.

1918	24.68	1913	15.52
1917	29.19	1912	16.48
1916	28.46	1911	12.55
1915	17.47	1910	12.88
1914	13.31	1909	13.11

CASTING COPPER PRICES

Average prices in New York

	1923.	1922.	1921.	1920.	1919.
Jan.	14.30	12.96	12.61	18.81	18.48
Feb.	.....	12.61	12.45	18.21	16.45
Mar.	.....	12.54	11.83	18.11	14.82
April	.....	12.46	11.82	18.40	15.06
May	.....	12.84	12.24	18.16	15.49
June	.....	13.33	12.08	17.65	17.17
July	.....	13.34	11.68	18.12	21.10
Aug.	.....	13.43	11.43	18.00	21.71
Sept.	.....	13.39	11.75	17.76	21.28
Oct.	.....	13.39	12.43	16.01	20.66
Nov.	.....	13.40	12.53	14.12	19.37
Dec.	.....	13.81	12.97	13.12	18.21
Average	.....	13.13	12.15	17.21	18.32

Annual Averages.

1918	24.68	1914	13.18
1917	27.64	1913	15.33
1916	26.51	1912	16.29
1915	16.76	1911	12.42

days of the month, while consumers were testing the market for wire and rolled products they were withholding orders. It was notable, however, that sheet copper was relatively more active, nearly all classes of consumers showing increasing interest and placing fair sized orders. Metal roofers bought copper shingles for January-February-March shipment, mainly for the latter month. There was also moderate buying of copper rods, rounds, squares and rectangulars but the latter demand was ephemeral.

Domestic consumers of bronze screens placed a few orders in anticipation of an increased demand from jobbers in the spring, whereas in the two preceding months, buying of screens was almost entirely for export. Some manufacturers of metal hardware and bronze screens report that orders from the South have increased at the rate of about 10% a month for the two or three months. The building trade exhibited more interest in brass tubing and spinners placed a fair number of orders for brass sheets.

It is notable that the amount of copper and brass being used in building construction is steadily increasing and from present indications, predictions that 780,000,000 pounds of copper will be used for structural work this year, bid fair to be realized. In this connection it may be noted that contracts placed for fabricated structural steel in January were the heaviest monthly orders of record and it is fair to assume that there will be a substantial increase also in orders for metal hardware, especially of brass and copper manufactures.

In the third week of the month when there was a temporary lull in demand for most products, there was a better demand for copper rolls. Some of the larger mills have capacity for rolls sold for the next three or four months. An unusual amount of rolled copper is being used in making gutters, leaders, elbows and flashings. Railroads and railroad equipment manufacturers, as well as locomotive works, have recently placed fair sized orders for both copper and brass products and shipbuilders, while relatively light buyers, have placed larger orders than in any month for many months, and the prospect is for some further improvement.

BRASS AND COPPER PRODUCTS.

All brass and copper products, excepting seamless tubes advanced ¼c a pound during January, nickel silver prices were reduced, apparently on an adjustment basis, the revision ranging from ¾c to 1¾c pound. The new base prices became effective toward the close of the month. The last two price lists issued follow:

COPPER PRODUCTS.

	Dec. 26, 1922	Jan. 29, 1923
Sheet copper	22¼	22½
Copper bottoms	30¾	31
Copper in rolls	20¾	21
Brush copper	23¼	23½
Sawed copper	23	23¼
Drawn copper shapes	20¾	21
Commutator copper	22	22¼

BRASS PRODUCTS.

Sheet Metal.

	Dec. 26, 1922	Jan. 31, 1923
High brass	19	19¼
Low brass	20⅝	20⅞
Rich low brass	21⅛	21⅜
Commercial bronze	22¼	22½
Common gilding	22¼	22½
Best spring drawing and spinning brass	20	20¼

Wire.

High brass	19½	19¾
Low brass	21⅛	21⅜
Commercial bronze and gilding	22¾	23
Best spring and brazing brass	20½	20¾

Rods.

	Dec. 26	Jan. 31
High brass (free turning)	17¼	17½
Low brass	21⅜	21⅝
Commercial bronze	23	23¼

Brazed Tubes.

	Dec. 26	Jan. 29
Brass	26	26¼
Copper and commercial bronze	31	31¼
Open seam brass	26	26¼
Open seam copper and commercial bronze	31	31¼

Seamless Tubes

	Sept. 27	Dec. 26
High brass	23	23½
Low brass	25	25½
Commercial bronze	26	26¼
Copper	24¾	25¼

NICKEL SILVER.

	Dec. 26	Jan. 31
10% grade A sheet metal	27¼	26½
15% " " " "	29	28
16% " " " "	29¼	28½
18% " " " "	30	29
21% " " " "	33	31½
25% " " " "	41	39¼
5% wire and rod	26¾	26½
8% " " "	28¼	
10% " " "	30¼	29½
12% " " "	32	31¼
15% " " "	34¼	33
16% " " "	35¼	34¼
18% " " "	37	36

A number of orders for copper wire have been placed on the Pacific Coast. These orders have ranged from 1,200,000 pounds to 4,000,000 pounds each. The Southern California Edison Co. placed substantial orders for bars and insulated wire but it is also notable that copper wire manufacturers lost orders for several hundred miles of cable to makers of aluminum cable. Milwaukee public service corporations purchased an aggregate of 2,500,000 pounds of wire in the last ten days. One San Francisco power company recently received shipments on 1,250,000 pounds of copper wire.

According to the Copper & Brass Research Association about 1,000,000 pounds of brass pipe and 12,000,000 pounds of copper are used in the manufacture of range boilers each year and this amount is likely to be increased by the larger number of gas water heaters that are being manufactured.

A fair volume of export business was transacted in January with shipments of 623 tons of plate to Europe, 190 tons going to France, 150 tons to Holland, 133 tons to Germany, 100 tons to England and 50 tons to Italy. England also took 20 tons of wire. Some business was done with South America and the hydro-electric project in Brazil will require 750 tons of wire and cable in the near future. The Canadian Utility Co. has taken 750 tons of wire.

EXPORTS OF COPPER.

As compiled by the New York Metal Exchange from Custom House returns, in tons of 2,240 lbs.

	1922.	1921.	1920.	1919.
Jan.	24,679	24,068	21,804	35,343
Feb.	22,910	27,748	25,700	17,937
Mar.	35,851	17,151	39,236	12,036
April	28,367	18,397	28,644	10,272
May	27,894	15,736	37,090	10,489
June	29,191	22,339	25,581	13,183
July	28,584	22,774	20,430	21,525
Aug.	26,889	19,110	20,121	23,530
Sept.	25,144	28,343	10,751	29,093
Oct.	22,681	22,934	10,073	21,793
Nov.	24,727	32,407	16,954	14,470
Dec.	.....	27,394	18,304	17,498
Total	296,917	278,401	274,688	227,169

Annual Totals.

1918	328,844	1913	382,810
1917	493,256	1912	327,965
1916	327,310	1911	336,801
1915	270,704	1910	301,935
1914	360,229	1909	301,657

TIN

The tin market during January did not show the fluctuations that have of late usually marked this mercurial and speculative commodity, the European political daily developments during the month being conducive of caution and conservatism on the part of the London bulls, but whether from the recognized fundamental strength of the metal, and the possibility that at any moment some favorable development might take place in the European situation, the London "hears" also show caution. The "bulls" gave little or no support when profit-taking selling took place, and the market absorbed such selling with ease, which can be attributed to the record-breaking consumption and demand for tin in the United States which continued during the month and still shows no signs of falling off.

The London Market—Opening at £183 15s for Straits, fluctuations at slightly lower prices ruled until January 22nd, when prices were again at £183 15s, after which the market steadily advanced to £188 5s and closed at £186 5s.

The New York Market closely followed the London and sterling exchange fluctuations affecting cost of import.

Opening at 39c for Straits spot and 39.12½c for futures, the market declined to 38.25c for spot, recovering to 39.25c by January 22nd, and on the following day the long predicted price of 40.00c for spot Straits was reached and paid,

TIN PRICES IN JANUARY

Day	New York Straits	99%.	London Stand.	Straits.	Singapore Straits.
			£ s. d.	£ s. d.	£ s. d.
2	39.00	37.75	182 5 0	183 15 0	187 0 0
3	38.60	37.37½	180 2 6	181 15 0	187 0 0
4	38.25	37.12½	178 17 6	180 12 6	184 10 0
5	38.25	37.00	179 0 0	180 15 0	183 15 0
6	38.35	37.12½	178 17 6	180 12 6	184 10 0
8	38.25	37.00	179 5 0	181 0 0	183 5 0
9	38.25	37.00	179 2 6	180 17 6	183 5 0
10	38.50	37.25	179 7 6	181 2 6	183 15 0
11	39.12½	37.75	181 0 0	182 15 0	184 10 0
12	39.25	38.25	181 17 6	183 12 6	185 10 0
15	39.00	37.75	181 5 0	182 15 0	185 12 6
16	38.87½	37.75	180 15 0	182 7 6	185 10 0
17	38.62½	37.62½	180 12 6	182 2 6	186 5 0
18	38.50	37.50	180 7 6	181 17 6	184 15 0
19	38.87½	38.00	181 2 6	182 12 6	184 15 0
22	39.37½	38.62½	182 2 6	183 12 6	185 15 0
23	40.00	39.00	183 15 0	185 5 0	187 15 0
24	40.00	39.00	184 5 0	186 0 0	189 5 0
25	39.87½	39.00	184 5 0	186 5 0	189 0 0
26	40.12½	39.12½	185 2 6	187 2 6	189 5 0
29	40.50	39.50	186 0 0	188 0 0	190 5 0
30	40.50	39.25	186 5 0	188 5 0	191 5 0
31	40.00	38.75	184 0 0	186 5 0	191 0 0
High	40.50	39.50	186 5 0	188 5 0	191 5 0
Low	38.25	37.00	178 17 6	180 12 6	183 5 0
Average	39.174	38.0625	181 17 1	183 11 7	186 10 9

MONTHLY TIN STATISTICS

As published by the New York Metal Exchange in tons of 2,240 pounds:

	Jan. 1923.	Dec. 1922.	Jan. 1922.
Supplies—			
Straits	6,255	4,655	5,823
Australian	155	180	222
Banka and Billiton	1,307	1,088	1,092
Chinese	1,410	1,179	629
Standard	1,668	1,225	309
	10,790	8,327	8,075
Deliveries—			
U. K. all kinds	1,497	2,014	1,953
U. S. A. all kinds	6,625	4,870	4,275
Continent, all kinds	1,903	2,404	1,525
	10,025	9,288	7,753
Increase in total visible supply	765	*961	322
Stocks—			
U. K. all kinds	7,185	6,010	8,070
U. S. A. all kinds	3,354	3,704	1,331
Continent, all kinds	2,372	2,273	5,365
	12,911	11,987	14,766
Afloat—			
U. K. all kinds	1,902	1,781	2,483
U. S. A. all kinds	10,095	9,928	9,198
Continent, all kinds	857	1,304	1,531
	12,854	13,013	13,212
Tot. visible supply	25,765	25,000	27,978

* Decrease.

STRAITS TIN PRICES.

Average prices of Straits tin for prompt delivery in New York.

	1923.	1922.	1921.	1920.	1919.
Jan.	39.17	32.11	36.11	62.89	72.50
Feb.		30.82	32.47	60.00	72.00
Mar.		29.17	28.85	61.99	71.75
April		30.65	30.41	62.20	72.26
May		30.97	32.52	55.07	71.94
June		31.54	29.57	48.62	71.20
July		31.82	27.69	49.37	70.39
Aug.		32.43	26.40	47.69	63.78
Sept.		32.40	26.73	44.62	55.81
Oct.		34.64	27.74	40.64	55.62
Nov.		36.72	29.02	37.02	54.17
Dec.		37.68	32.49	34.15	55.06
Average		32.58	30.00	50.36	65.54

Yearly Averages.

1919	65.54	1914	35.70
1918	86.80	1913	44.32
1917	61.65	1912	46.43
1916	43.48	1911	42.68
1915	38.66	1910	34.27

TIN DELIVERIES IN UNITED STATES

Monthly deliveries of tin in United States, exclusive of domestic refined tin, in tons of 2,240 pounds.

	1923.	1922.	1921.	1920.	1919.
Jan.	†6,625	4,275	1,555	3,910	1,850
Feb.		3,215	1,585	5,200	2,450
Mar.		6,030	1,683	5,130	2,070
April		4,995	1,590	3,305	36
May		4,740	1,225	3,550	20
June		5,130	1,590	6,500	68
July		4,590	1,525	5,530	132
Aug.		4,150	3,320	3,745	4,345
Sept.		5,050	2,605	4,860	4,825
Oct.		5,603	2,280	3,415	2,875
Nov.		4,812	3,250	3,395	6,665
Dec.		4,870	3,710	2,580	6,965
Total		57,460	25,918	51,120	32,301

VISIBLE SUPPLY OF TIN

World's visible supply of tin at end of each month in tons of 2,240 pounds.

	1923.	1922.	1921.	1920.
Jan.	†25,765	26,216	18,994	21,056
Feb.		25,047	17,074	21,586
Mar.		22,353	16,073	18,305
April		22,017	15,670	19,342
May		22,910	18,352	20,976
June		23,566	17,968	18,851
July		21,502	20,316	18,546
Aug.		24,176*	19,358	19,858
Sept.		22,879*	21,189	18,996
Oct.		22,902	23,349	19,964
Nov.		25,286	22,806	19,823
Dec.		24,930	25,220	19,410
Average		23,649	19,697	19,726

* Includes current shipments of Banka and Chinese to U. S.

Annual Averages.

1919	12,890	1914	14,907
1918	13,894	1913	12,377
1917	18,803	1912	13,207
1916	18,585	1911	16,404
1915	15,208	1910	18,815

TIN SHIPMENTS FROM STRAITS

(Tons of 2,240 lbs.)

	1923.	1922.	1921.	1920.	1919.
Jan.	†10,790	5,515	1,055	3,910	3,340
Feb.		3,640	240	4,810	2,860
Mar.		4,985	915	2,795	2,254
April		5,350	1,800	3,872	1,127
May		6,420	3,667	4,930	1,704
June		6,505	1,425	4,261	1,629
July		4,035	3,975	3,865	7,302
Aug.		5,855	3,165	3,798	8,829
Sept.		4,050	5,300	4,529	5,465
Oct.		5,650	4,525	3,340	4,431
Nov.		6,145	4,065	2,630	4,135
Dec.		4,635	5,920	2,225	6,677
Total		62,785	36,052	44,965	49,763

Annual Totals

1918	*55,000	1914	63,093
1917	62,366	1913	62,550
1916	61,587	1912	59,318
1915	66,517	1911	55,470

† Note—London Metal Exchange statistics. * Estimated.

the spot price advancing ⅛c above futures. On January 30th, with signs of scarcity in spot Straits, 40.50c was reached, the future price being ⅜c per pound less but on the following day, January 31st, the market for both spot and future declined ⅜c per pound to 40.00c for spot and 39.62½c for futures on fears of unfavorabe monthly statistics and foreign political news.

The features of the month were lessened trading between New York dealers, but good buying by consumers, especially on reactions in prices.

The monthly statistics issued Feb. 1st confirmed the heavy American consumption, the American deliveries for January being 6,625 tons.

These are the largest deliveries for any given month on record, with the following exceptions:

November 1919	6,665	tons
December 1919	6,965	"
June 1918	6,782	"
July 1918	7,169	"
January 1918	7,177	"

At these times American consumers, frightened over the prospect of tin being cut off by the war, submarines, etc., were frantically securing "safety" stocks. The deliveries did not represent in any way actual consumption. The deliveries this January of 6,665 tons can be said to be the most remarkable on record as they virtually represent the actual consumption of tin going on in the United States at present.

In spite of this the visible supply of the world showed on February 1st an increase of 765 tons to 25,765 tons, caused by an increase in shipments from sources of supply in January of some 2,000 tons above the normal and a falling off in deliveries in the United Kingdom and the Continent.

The increased supply is accounted for by some 1,200 tons of Chinese tin produced over a year ago that has since been shipped, forced into the market by reason of the heavy call for tin from America. This increased supply from China cannot be repeated. The Straits Trading Company state they do not intend to part with the stocks they have for so long carried, being confident that the market will go much higher.

Looking over the whole tin situation irrespective of any stimulation on the part of the London "bulls," whose judgement of the market has been confirmed since they some months ago started their campaign based on the belief of increasing consumption, the situation seems a very sound one, and with every prospect of continued large American consumption prices should work higher. There is a vacuum in tin and other metals in Europe that is crying for satisfaction and if matters financial and political assume any shape whereby business there can function, to our present American demand must be added a large European demand.

With the situation as it is it would seem that our consumers cannot go far wrong in buying on reactions in price, which, when they come, promise to be only temporary.

A REMARKABLE TIN SITUATION

An occasional correspondent under date of London, Jan. 20th says:

A fuller examination of the annual statistics reveals a very remarkable position, especially in view of all the talk throughout the year about the stocks held by the Straits and Dutch governments. If I read the position up correctly, these two much maligned governments may sit on the fence with far greater equanimity than those dealers and consumers who have been reported from time to time to have cast such covetous eyes on the stocks they would not look at a couple of years or so ago but have recently expressed such a desire to possess.

As they have found to their sorrow, these stocks are now tucked away somewhere up country, and it is more than likely that they will grow into money as the year grows older. I admit it is possible I may be too optimistic in my ideas, and may perhaps have overlooked a point or two which others see. But after a most careful examination of supplies from all sources since the war coupled with the deliveries for the same period, the world appears to have consumed during 1922 at least 10,000 and probably nearer 12,000 tons of invisible supplies, i.e., included in the invisible at the commencement of last year, and on top of this the total visible of Standard has decreased fully 1,700 tons during the same period. This is not a bad showing,

and if correct it has cleared the air considerably. And those who have issued such remarkable figures about the enormous unsold visible and invisible supplies will have to either revise them very considerably, or they may find their estimates have mislead them horribly, and wake up one fine morning to find the price is considerably higher than they ever expected. No doubt stocks in American consumers' hands are larger than they were 12 months ago, but this is just where surplus stocks should be, if a consumer wants to sleep comfortably with the knowledge that he has sufficient to meet his immediate prospective requirements without being forced to buy at a given moment when the seller is in a position to name his own price without fear of being undersold by his neighbors. On the other hand continental consumers are not so well stocked in spite of the fact that continental deliveries for the last four months of the year were at the rate of 18,600 tons per annum against a rate per annum of only 9,000 tons for first four months of the year. This is a very important point to bear in mind, for it shows a great improvement in industrial conditions in spite of the chaos in the exchanges. True they may fall off temporarily in the present circumstances, but as an offset to this our own trade is improving all along the line. And although America will still remain the larger individual consumer, she will not have it all her own way this year. At east this is how your correspondent reads up the position! Whether he is right or wrong, time alone will prove.

In any case it would appear that practically with the exception of the Eastern government's stocks all the available invisible stocks are now disposed of. The former are still estimated in some quarters to be about 14,000 tons, while in other quarters they are placed at about 16,000 tons. If this be correct, it does not require any very great calculation to realize that providing trade remains good the Eastern governments are in a very snug position, and can afford to sit tight until prices rise either with or without the aid of speculation to such a level that they can slip out without loss. "He laughs best who laughs last!"

LEAD

In spite of the high prices already reached at the beginning of the year, the advance in lead in January was greater than in any month since the upward movement started, being over 1.00c per pound in the general market. At the opening of the month the outside western market was 7.10c E. St. Louis; at the close it was 8.15c. At the beginning of January the American Smelting & Refining Company's average contract price was 7.25c New York; at the close it was 8.00c, there having been four advances, viz: on January 9th to 7.40c, January 10th to 7.50c, January 22nd to 7.75c January 23rd to 8.00c.

The consumption of lead continues phenomenal, and all the different lines of trade into which lead enters have been increasingly busy. White lead and paint interests, who have been active with very little interruption ever since the war, exceeded all records for their trade in January. Cable manufacturers and storage battery concerns have likewise experienced extreme activity and the same has been the case in lead pipe, solder and other lead consuming branches of industry.

LEAD AND ZINC PRICES IN JANUARY

Day	LEAD				ZINC		
	New York *	New York †	St. Louis †	London £ s d	New York	St. Louis §	London £ s d
2	7.25	7.25	7.10	26 17 6	7.40	7.05	36 10 0
3	7.25	7.32½	7.17½	26 15 0	7.40	7.05	36 5 0
4	7.25	7.32½	7.20	26 15 0	7.40	7.05	35 12 6
5	7.25	7.40	7.25	26 12 6	7.37½	7.02½	35 5 0
6	7.25	7.40	7.25				
8	7.25	7.60	7.30	26 12 6	7.35	7.00	35 12 6
9	7.40	7.60	7.30	26 12 6	7.35	7.00	35 10 0
10	7.50	7.70	7.40	26 15 0	7.35	7.00	35 15 0
11	7.50	7.80	7.50	27 0 0	7.35	7.00	35 12 6
12	7.50	7.80	7.60	27 2 6	7.32½	6.97½	35 0 0
13	7.50	7.80	7.60				
15	7.50	7.80	7.57½	26 17 6	7.30	6.95	35 0 0
16	7.50	7.85	7.62½	26 15 0	7.27½	6.92½	35 2 6
17	7.50	7.95	7.65	26 10 0	7.22½	6.87½	35 7 6
18	7.50	7.95	7.67½	26 10 0	7.20	6.85	35 12 6
19	7.50	7.95	7.65	26 7 6	7.17½	6.82½	35 12 6
20	7.50	7.95	7.65				
22	7.75	7.75	7.65	26 10 0	7.15	6.80	35 10 0
23	8.00	8.10	7.95	27 0 0	7.12½	6.77½	35 5 0
24	8.00	8.25	7.95	27 12 6	7.15	6.80	35 7 6
25	8.00	8.25	7.95	27 15 0	7.17½	6.82½	35 12 6
26	8.00	8.25	8.05	28 5 0	7.30	6.95	35 15 0
27	8.00	8.25	8.05				
29	8.00	8.20	8.15	28 5 0	7.40	7.05	36 12 6
30	8.00	8.20	8.15	28 17 6	7.50	7.15	37 5 0
31	8.00	8.20	8.15	28 5 0	7.45	7.10	36 17 6
High	8.00	8.30	8.15	28 17 6	7.55	7.20	37 5 0
Low	7.25	7.25	7.07½	26 7 6	7.10	6.75	35 0 0
Av.	7.60	7.84	7.64	27 2 5	7.31	6.96	35 14 3

* A. S. & R. price.
† Outside market. § Prime Western.

The production of lead, even with incentive furnished by the present price is as yet barely able to cope with the volume of demand. During the latter part of January, however, the principal smelting interest was in position for the first time for many weeks to offer in the general market a surplus tonnage for prompt shipment from the West over and above their contract engagements, their receipts of lead for January having proved greater than they had previously counted on. But there is no appearance yet of heavy over-production.

LEAD PRICES, ST. LOUIS.

Average Prices, East St. Louis Basis.

	1923.	1922.	1921.	1920.	1919.
Jan.	7.64	4.40	4.78	8.32	5.36
Feb.	....	4.40	4.29	8.62	4.83
Mar.	....	4.43	4.03	8.93	5.01
April	....	4.97	4.30	8.71	4.87
May	....	5.30	4.82	8.52	4.80
June	....	5.58	4.34	8.36	5.06
July	....	5.45	4.28	8.58	5.42
Aug.	....	5.55	4.23	8.89	5.60
Sept.	....	5.90	4.41	8.23	5.81
Oct.	....	6.36	4.47	7.08	6.22
Nov.	....	6.88	4.38	6.16	6.68
Dec.	....	6.99	4.40	4.75	6.96
Year	....	5.52	4.39	7.93	5.55

Annual Averages

1918	7.25	1913	4.26
1917	8.92	1912	4.38
1916	6.80	1911	4.31
1915	4.57	1910	4.33
1914	3.74	1909	4.12

LEAD PRICE CHANGES.

The American Smelting & Refining Company's changes in the base price of lead since the beginning of 1921 are given below:

1922—		Sept. 22	6.25
Opening	4.70	" 27	6.35
Mar. 30	4.80	Oct. 6	6.50
April 3	4.90	Nov. 1	6.75
" 7	5.00	" 2	7.00
" 20	5.10	" 24	7.10
" 24	5.25	Dec. 19	7.25
May 16	5.35	1923—	
" 18	5.50	Jan. 9	7.40
" 29	5.65	" 10	7.50
June 7	5.75	" 22	7.75
Aug. 21	5.90	" 23	8.00
Sept. 14	6.00		
" 19	6.10		

Mexican output has lately shown an increase, having been over 15,000 tons in December. This is noteworthy in view of the fact that the highest Mexican production in any year from 1913 to 1920 was 97,530 tons in 1918. Increase may also be expected in Spanish and Australian production, though these countries have had to struggle with labor difficulties. The high prices ruling abroad, however, have so far afforded little diversion of foreign lead to this country for American consumption. London advanced during January over £1 per ton, the price at the close of the month being £28 17s 6d.

A recent development has been the closer approximation relatively of prices in the E. St. Louis and New York markets, the available spot stocks in the West being practically in the hands of one interest, who, having sold but little in advance, was able to obtain high prices, offering only a limited tonnage at each stage of the advance.

At the close of January the larger consumers were reported to be receiving fairly adequate supplies on contract deliveries though large orders for quick delivery have been frequent in the general market throughout the month.

WATERBURY COPPER AVERAGES

	1923.	1922.	1921.	1920.	1919.
Jan.	14.87½	13.87½	13.75	19.50	23.00
Feb.	.....	13.37½	13.50	19.12½	18.00
Mar.	.....	13.12½	12.62½	18.87½	15.50
Apr.	.....	13.00	12.75	19.12½	15.50
May	.....	13.37½	13.12½	19.00	16.37½
June	.....	14.00	13.12½	18.50	17.75
July	.....	14.12½	12.87½	19.00	22.00
Aug.	.....	14.12½	12.25	18.75	23.00
Sept.	.....	14.25	12.37½	18.75	22.50
Oct.	.....	14.25	13.12½	16.87½	22.25
Nov.	.....	14.12½	13.37½	15.25	21.00
Dec.	.....	14.50	13.87½	14.25	18.75
Av.	.....	13.84	13.06	18.06	19.63½

Annual Averages.

1918	24.75	1913	15.83
1917	30.11	1912	16.71
1916	28.85	1911	12.75
1915	18.94	1910	13.13
1914	13.91	1909	13.41

ZINC

The month of January opened with the market for prompt shipment quoted at 7.05c E. St. Louis for prime western. There followed a gradual decline to 6.82½c, and a sharp recovery at the end of the month to 7.15c.

The statistics for December showed a reduction in smelters' stocks of 1,245 tons, but as this reduction was only achieved through export shipments of 10,246 tons, a rate higher than it is thought can be maintained, the statement was not regarded as altogether favorable. Attention was directed to the increase in output of 2,641 tons for December, and the increase in the number of retorts in operation which at the end of December was 80,863, as against 52,677 in mid-year, and 42,369 at the beginning of 1922.

This evidence of increasing output, and doubt as to the period of continued export inclined some producers to offer futures, particularly second quarter, at a discount below prompt, amounting to about five points per month.

A considerable future business for domestic account was done on this scale, and these concessions on futures had a depressing effect for a time on the earlier positions—more in fact than the situation warranted.

The decline was assisted for several days by the reciprocal effect of the foreign and domestic markets, each receding successively as influenced by the other—a condition seen repeatedly in the last few months, London declining and supposing itself to be following us, while we on the other hand had a similar misconception. A recurrence of real activity towards the end of January quickly revealed the intrinsic value of the early positions. It then became evident that the tonnage unsold for February was in few hands, and producers able to offer it, who had held aloof during the decline, met the advance at 7.00c and realized 7.10c for a considerable quantity.

This heavy buying during the latter part of January was mainly for export, from smelters situated west of the Mississippi, convenient for Gulf shipment. Some producers also, cramped for early metal for the fulfilment of contracts, were likewise buyers of February.

Domestic demand during the month was heavier for futures than for early deliveries. The improvement in the activity of steel products has not been discernible yet to any marked extent in galvanized sheets. But the prospects for domestic demand from this source are excellent.

The brass trade, largely absent from the zinc market since post war days, is now again a steady factor in the demand, and shows increasing activity.

The most potent feature, however, in the situation is the foreign demand, and it seems certain that America will be called upon for zinc through the first half of this year, and perhaps throughout the whole of it.

Belgian output is still on a limited scale of about 11,000 tons per month and the Ruhr coal situation is likely to make

U. S. ZINC STATISTICS.

From the monthly reports of the American Zinc Institute, in tons of 2,000 lbs.

	Production		Deliveries	
	1922.	1921.	1922.	1921.
Jan. ..	23,706	25,916	24,636	21,021
Feb. ..	22,513	17,769	24,067	15,702
Mar. ..	26,532	15,741	30,394	12,771
April ..	25,506	16,550	34,040	17,959
May ..	27,419	18,026	38,738	13,886
June ..	28,547	19,443	39,380	13,275
July ..	31,917	15,495	32,875	12,976
Aug. ..	31,423	14,621	38,412	20,480
Sept. ..	33,134	14,367	35,957	19,781
Oct. ..	39,940	14,538	40,703	24,849
Nov. ..	40,200	21,135	38,746	24,910
Dec. ..	42,841	22,013	44,086	22,454
Total	373,678	215,614	422,034	220,064

	Stocks at Smelters*		Retorts in Operation*	
	1922.	1921.	1922.	1921.
Jan. ..	65,678	75,953	44,457	44,781
Feb. ..	64,124	78,020	43,357	37,782
Mar. ..	60,262	80,990	45,373	35,297
April ..	51,728	79,581	42,773	39,673
May ..	40,409	83,721	48,765	40,043
June ..	29,576	89,889	52,677	35,789
July ..	28,618	92,408	54,909	30,349
Aug. ..	21,629	86,549	57,193	29,576
Sept ..	18,806	81,135	65,936	29,429
Oct. ...	18,043	70,324	72,116	27,949
Nov. ..	19,497	67,049	75,664	46,444
Dec. ..	18,252	66,608	80,863	42,369

* At end of month.

it difficult to increase or even maintain that average.

Recent English advices report that the galvanized sheet trade in that country is working at full capacity.

It would appear therefore, that for some months to come the combined domestic and foreign demand can be counted on to absorb the present scale of output in this country.

PRIME WESTERN ZINC PRICES.

Average Prices, East St. Louis Basis.

	1923	1922	1921	1920	1919	1918
Jan.	6.96	4.71	5.44	9.22	7.12	7.71
Feb.	....	4.50	4.95	8.82	6.37	7.73
Mar.	....	4.65	4.73	8.62	6.18	7.42
Apr.	....	4.91	4.75	8.26	6.16	6.81
May	....	5.10	4.86	7.72	6.11	7.14
June	....	5.35	4.44	7.58	6.57	7.85
July	....	5.77	4.27	7.82	7.56	8.43
Aug.	....	6.24	4.19	7.95	7.50	8.73
Sept.	....	6.56	4.25	7.77	7.20	9.31
Oct.	....	6.85	4.61	7.25	7.49	8.77
Nov.	....	7.14	4.68	6.37	7.83	8.39
Dec.	....	7.12	4.85	5.84	8.40	8.21
Av.	....	5.74	4.67	7.77	7.04	8.04

Annual Averages.

1917.....	8.93	1912.....	6.93
1916.....	13.57	1911.....	5.70
1915.....	14.16	1910.....	5.42
1914.....	5.11	1909.....	5.39
1913.....	5.61	1908.....	4.62

WATERBURY ZINC AVERAGES.

	1923	1922	1921	1920	1919	1918
Jan.	8.00	5.25	6.05	9.75	9.00	9.60
Feb.	....	5.00	5.50	9.40	8.10	9.60
Mar.	....	5.10	5.25	9.15	8.00	9.40
Apr.	....	5.40	5.20	8.85	6.90	8.50
May	....	5.55	5.30	8.30	6.80	8.95
June	....	5.85	5.00	8.15	7.25	9.50
July	....	6.20	4.80	8.45	8.10	10.30
Aug.	....	6.50	4.70	8.55	8.15	10.45
Sept.	....	7.10	4.75	8.45	7.85	11.20
Oct.	....	7.65	5.10	7.50	8.15	10.60
Nov.	....	7.90	5.15	7.00	8.55	10.20
Dec.	....	7.90	5.30	6.40	9.05	10.00
Av.	....	6.28	5.17½	8.33	8.00	9.86

SHEET ZINC

Sheet zinc, in sympathy with lower prices prevailing for slab zinc, developed an easier tone and in the third week of January all leading manufacturers reduced asking price to 9.00c base f.o.b. plant with usual discount and extras. The decline, therefore in sheets was ¼c to ½c a pound. One large manufacturer has no fixed base price and will quote only on definite specifications. Late in the month as slab zinc became more active and stronger this manufacturer was holding at 9.25c f. o. b. plant with the usual discounts and extras. Other manufacturers, however, continued to make sales at 9.00c base.

JOPLIN ZINC AND LEAD ORES

Review for January, 1923

The first month of 1923 saw very excellent shipments of both zinc and lead ores, but a decline in the prices for zinc ores and a very radical increase in the price of lead ores. Shipments of blende ores closely approximated 12,000 tons per week during the month, but purchases showed some decline over the last three months of 1922. The last week of the month, however, showed a returned demand for zinc blende ores and the month closed very much stronger than it began in the zinc market. The average for all zinc blende ores for the month was $40.71 per ton. The average for calamine ores was $25.04. This compares with $26.45 for zinc blende in 1922. There was no calamine market one year ago, nor any calamine production. Shipments of zinc blende ores this year have increased 18,766 tons over 1922, and 475 tons for calamine ores. The surplus stocks are in much better condition that one year ago, unsold stocks being 60,000 tons as compared with 72,000 tons last year.

Lead ores opened the year at $93.00 and advanced steadily throughout the month to a high base price of $102.00 for 80% ore. Even at this high price ore buyers are unable to get all the ores they desire. Shipments for the month approximate 1,700 tons per week for the first month of the year, the average price being $96.47. The shipments are 208 tons greater this year than last year, while prices are 50% higher. Stocks in the ore bins of the producers are estimated at 500 tons as compared with 700 tons for the same period last year. The industry as a whole has shown a remarkable revival during the last three months of the previous year and the first month of the new year promises to continue this progress during the new year. Prospecting activities are notable throughout both new and old territory, and mill building is now assuming some activity with a promise of greater proportions as the Spring months open. The exceptionally open Winter has aided production and mining operations greatly. The princi-

pal handicap of the mine operators has been in the lack of water for milling purposes, difficulty in ore shipments and the latter end of January the disruption of mining organizations due to the influenza epidemic on a very considerable scale in the Picher mining camp.

ALUMINUM

It is not surprising that Jnauary was a quiet month for ingot aluminum after the heavy transactions in December at relatively low prices. Early in February some arrivals against the purchases of Norwegian ingots that were made early in December at 16c per pound for 98% to 99% virgin and 16.50c for 99% plus virgin and bond, made it evident that the sales were bona fide. Some doubt had been cast upon the transactions by agents of other European aluminum manufacturers. There seems to be no doubt now, however, that deliveries against all of these contracts will be made as stipulated during the first half of 1923.

Outside of these large transactions in Norwegian aluminum, sales of about 1,200 tons of Swiss and other European aluminum were made at rising prices. Consumers' requirements for some months however, seem to be well covered so that small sales in January were the rule. Today the demand is light but on the other hand, offerings are small. Thus far few of the purchasers of European aluminum made in December and January are disposed to accept profits through resales of ingots, the intention apparently, being to utilize the metal in manufactures which will net probably more than if ingots were resold in the open market. Agents of European producers continue to ask relatively high prices but in the open market nominal quotations are 1c to 2c a pound less, there being sellers at approximately 23.50c f. o. b. New York duty paid, for 99% plus and 23c for 98% to 99% virgin. There is small inquiry for resmelting.

The domestic situation is unchanged and prices are nominally as quoted a month ago. The Aluminum Company of America is reported to have successfully bid in January on two large orders for aluminum wire in competition with American manufacturers of copper wire for power lines on the Pacific Coast. It is claimed that the aluminum wire was sold at practionally lower prices considering weight and conductivity than the price at which copper wire was offered.

It is pointed out that consumption of aluminum in the United States is constantly increasing. It is estimated that today, home consumption exceeds production by about 22%, the balance being maintained by importations of ingots from Europe which are commercially possible at present prices notwithstanding the recent increase in the duty on the foreign product.

ALUMINUM, ANTIMONY, SILVER AND STERLING EXCHANGE QUOTATIONS IN JANUARY

Day	Aluminum	Antimony	Silver — N. Y.	Silver — London.	Sterling Exch.*
2	22.75	6.30	.64½	31⅜	$4.64⅝
3	22.75	6.35	.64⅝	31⅜	4.64⅞
4	22.75	6.45	.66⅜	32¼	4.64⅝
5	22.75	6.60	.65⅛	31 9/16	4.64¾
6	.....	....	.66⅝	31 15/16	....
8	22.75	6.60	.66	32 1/16	4.64¼
9	22.75	6.60	.65⅝	31 15/16	4.65
10	22.75	6.62½	.64⅜	31 3/16	4.66⅛
11	22.75	6.75	.65⅛	31 9/16	4.67½
12	22.75	6.75	.65⅜	31 11/16	4.67⅜
13	.....	....	.65½	31⅞	....
15	22.75	6.75	.67⅛	32½	4.66⅜
16	22.75	6.85	.66¾	32½	4.66¼
17	22.75	6.85	.65½	32	4.65
18	22.75	6.85	.65½	32 7/16	4.64⅝
19	22.75	6.85	.65⅜	31⅞	4.66½
20	.....	....	.65⅞	32 1/16	....
22	22.75	7.00	.66	32 3/16	4.65½
23	22.75	7.00	.66½	32⅜	4.66
24	22.75	7.00	.67⅛	32 11/16	4.65½
25	22.75	7.12½	.66½	32¼	4.65⅜
26	22.75	7.12½	.66⅛	32	4.64½
27	.....	....	.66	32 3/16	....
29	22.75	7.12½	.64⅞	31⅝	4.63
30	22.75	7.12½	.65⅛	31⅝	4.63⅞
31	22.75	7.12½	.64¾	31 7/16	4.64½
High .	23.00	7.12½	.67⅛	32 11/16	4.67⅜
Low .	22.50	6.25	.64⅜	31 3/16	4.63
Av'ge	22.75	6.81	65.7067	31.9447	

ALUMINUM PRICES.

Open market quotations on virgin aluminum 98-99% pure, in New York.

	1923.	1922.	1921.	1920.	1919.
Jan. ...	22.75	17.74	22.86	32.00	33.10
Feb. ...	.....	17.33	24.50	31.83	32.26
Mar. ...	.....	17.52	23.44	31.50	29.81
Apr. ...	.....	18.06	23.25	31.61	30.67
May ...	.....	17.92	23.06	31.95	32.21
June ...	.....	17.87	22.75	32.00	32.83
July ...	.....	17.87	22.62	32.00	32.57
Aug. ...	.....	17.87	20.22	32.21	32.23
Sept. ..	.....	18.26	19.02	31.44	32.50
Oct. ...	.....	20.51	17.85	29.12	32.50
Nov. ...	.....	21.66	17.50	27.80	32.50
Dec. ...	.....	22.52	17.50	23.83	32.48
Av.	.....	18.68	21.21	30.61	32.14

Annual Averages.

1918.....	33.60	1914.....	18.59
1917.....	51.25	1913.....	23.63
1916.....	60.73	1912.....	22.52
1915.....	34.13	1911.....	20.34

ANTIMONY

With the very beginning of the year the aspect of the antimony market changed completely from a dull dragging condition to one of strength and activity. Just prior to January first, holders of spot stocks had been offering concessions on round lots without eliciting any response from buyers. In the early days of the month buyers began to show interest and then found sellers in a very different temper. With active buying the market advanced steadily from 6.25 until at the end of January the price had reached 7.12½ New York, duty paid.

During the course of this movement there was a pretty good cleaning up of parcels that had been imported speculatively prior to the advance in the duty in September. The influence of the tariff speculation is now definitely over, and the stocks now on hand are more closely concentrated.

Although the demand for spot antimony was good, there was an even better demand for import. This had naturally been quiet since the importations made in advance of the change in tariff, but as such anticipatory imports had not been excessive, the need of replenishment by metal to arrive in the next three or four months led to large enquiries being cabled to China.

That market was found to be in a strong position. During the interim of non-buying from this country the stocks in China had not accumulated to the extent that might have been expected. Actual conditions there are generally difficult to determine exactly, but apparently the low price had discouraged output, and the available stock was reported to be in few hands. It is also stated that severe drought in the producing districts of China with consequent low water in the rivers has interfered with shipments from the interior, and revolutionary disturbances around Hankow had likewise an untoward effect.

A few import parcels were obtained early in the month at around 4.50c c.i.f. New York in bond for first quarter shipment, but subsequently 4.75c and even higher was paid, and during the latter part of January firm offerings from the Orient became very scarce indeed. At the close of the month the nominal import price was around 5.00c c.i. f. New York.

Highest Grade TRADE MARK H C T 99½%

ANTIMONY

Regulus H.T.C. Brand 99½%

Regulus S.G.C. Brand 99%

Crude S.G.C. Brand 70%

Antimony Ore

Chinese White Oxide of Antimony H. T. C. Brand 98% Minimum

We are sole representatives in the United States and Canada of Kai Lee Gung Tse of China.

TUNGSTEN ORE

LEAD ORE

CHINESE TIN

SINO JAVA HANDELSVEREENIGING
INC.
40 RECTOR ST. NEW YORK
Phone Whitehall 2962

Altogether tthe position of antimony may be regarded as strong. It lagged behind the other non-ferrous metals in the recent upward turn of prices, and it must be remembered that the present price of 7,12½c includes 2.00c per pound duty, and at the net figure of 5c it still is by far the cheapest on the list at a time when general commodities and metals in particular have an upward trend.

ANTIMONY PRICES.

Prices for Chinese and Japanese antimony (ordinary grades) in New York.

	1923	1922	1921	1920	1919	1918
Jan.	6.81	4.45	5.22	10.53	7.59	14.23
Feb.	....	4.38	5.23	11.55	7.24	13.67
Mar.	....	4.25	5.30	10.97	6.83	13.12
April	....	4.88	5.15	10.45	6.82	12.52
May	....	5.42	5.25	9.44	7.56	12.41
June	....	5.13	5.06	7.93	8.37	12.99
July	....	5.08	4.68	7.43	8.81	13.18
Aug.	....	5.29	4.55	7.04	8.92	13.81
Sept.	....	6.43	4.53	7.10	8.53	13.93
Oct.	....	6.80	4.94	6.62	8.60	13.44
Nov.	....	6.54	4.66	6.05	9.06	9.10
Dec.	....	6.35	4.51	5.46	9.56	8.19
Av.	....	5.42	4.92	8.38	8.16	12.55

Annual Averages

1917	20.73	1913	7.43
1916	25.33	1912	7.68
1915	29.52	1911	7.48
1914	8.53	1910	7.27

Alaska Coal and Copper—In 1917 Alaska copper mines, stimulated by war prices, had an output of 119,854,000 pounds, but this rate of production fell off until in 1921 only 57,000,000 pounds were produced, and in 1922 probably only 68,000,000 pounds. The United States Geological Survey states that the stiffening of the price of the metal to 14.00 cents is expected to result in the resumption of operations by many owners of small mines that have been idle for more than a year. The mining of Alaska coal for the local market was continued in the Matanuska, Nenana and Cook Inlet fields, and in a very small way in some other places. Though only about 60,000 tons were mined, even this amount has been a great boon to some communities and mining districts. For many years the Alaska metal mining industry was handicapped by being forced to pay heavily for its fuel, no local coal being available.—**Industrial Management.**

PLATINUM

Platinum at the end of January was stronger and early in February the price of refined advanced $6.00 an ounce to $116. Crude however, remained practically unchanged at $108 to $110 an ounce. Buying was quite active in the last week, consumers who had previously held off entering the market in force.

Throughout January the market was more or less unsettled with wide fluctuations in prices. Early in January one large sale of 250 ounces was made at $112 an ounce and there were other inquiries ranging from 200 to 300 ounces each. For small lots $118 an ounce was asked for refined but the sudden appearance of about 800 ounces of reclaimed metal caused a drop in crude metal of from $1 to $3 an ounce. In exceptional instances some crude was obtained at $108 to $109 an ounce but the market later strengthened with sales at $110. Large refiners were the principal buyers during the first half of the month.

Imports from London and the Continent were small and with manufacturing jewelers coming into the market a firmer tone was developed. Recent lighter arrivals from Columbia and smaller receipts from Russia have helped strengthen the tone of the market.

Palladium has advanced $20 an ounce during tthe month from $54 to $74 an ounce. Iridium continued quiet but firm at $250 an ounce.

QUICKSILVER

Business in quicksilver at the end of January was light, orders being confined to small lots of from one to five flasks each. These were being sold at $71 per flask while firm bids of $70 per ton might have resulted in business. Thus the price declined from $3 to $4 a flask during the month.

There were considerable importations in January but practically all of the arrivals had been sold either before shipment from the other side or afloat. Local importers of Spanish quicksilver would have accepted bids of $69 per flask duty paid early in February but buyers were holding off. The trade continues more or less unsettled as still lower prices are anticipated. At the end of January quicksilver at London was quoted £10 5s while early in January the London market was held at £11 10s.

These Debentures having been Sold, this advertisement appears as a matter of record only.

$50,000,000

(Closed Issue)

Anaconda Copper Mining Company

Fifteen Year 7% Convertible Debentures

To be dated February 1, 1923 **To mature February 1, 1938**

Coupon Debentures in denominations of $1,000 and $500, registerable as to principal only, Interest payable February 1 and August 1. Redeemable as a whole or in part at the option of the Company on any interest payment date upon thirty days' notice at 110. Principal and interest payable in United States gold coin at the office of the

GUARANTY TRUST COMPANY OF NEW YORK
and
THE NATIONAL CITY BANK OF NEW YORK, TRUSTEE

The principal of the Debentures will be convertible at any time prior to February 1, 1933, into the common capital stock of the Anaconda Copper Mining Company, as the same may from time to time be constituted, at the following rates, based upon the present par value of $50 a share, and at rates proportionate thereto in case of any change in such par value; the first $10,000,000 principal amount of Debentures to be presented for conversion may be converted at a price of $53 a share; the next $10,000,000 at a price of $56 a share; the next $10,000,000 at a price of $59 a share; the next $10,000,000 at price of $62 a share; and the last $10,000,000 at a price of $65 a share.

Application will be made to list these Debentures on the N. Y. Stock Exchange

The Debentures are offered if, as, and when issued and received by us subject to authorization of the Company's stockholders and to approval by counsel of all legal matters. It is anticipated that delivery of interim receipts will be made on or about February 1, 1923.

Price 100 and Interest, Yielding 7%

Guaranty Company of New York — The National City Company

Dillon, Read & Co. — Lee, Higginson & Co. — Kidder, Peabody & Co.

Brown Brothers & Co. — Halsey, Stuart & Co., Inc.

E. H. Rollins & Sons — Kissel, Kinnicut & Co. — Hallgarten & Co.

White, Weld & Co. — Hornblower & Weeks — Spencer Trask & Co.

Hayden, Stone & Co. — Kean, Taylor & Co. — W. A. Harriman & Co., Inc.

Redmond & Co. — Marshall Field, Glore, Ward & Co. — Chas. D. Barney & Co.

Cassatt & Co. — Edward B. Smith & Co. — Graham, Parsons & Co.

Blyth, Witter & Co. — J. & W. Seligman & Co. — Ames, Emerich & Co.

Old Colony Trust Company, Boston — First National Bank, Boston — National Shawmut Bank of Boston

Mellon National Bank, Pittsburgh — The Union Trust Company of Pittsburgh

Continental and Commercial Trust and Savings Bank, Chicago

First Trust & Savings Bank, Chicago — The Northern Trust Company, Chicago

The Union Trust Company, Cleveland — The Cleveland Trust Company, Cleveland

Anglo London Paris Company, San Francisco — Bank of Italy, San Francisco — Mercantile Securities Company, San Francisco

The above information is based upon official statements and statistics on which we have relied. We do not gaurantee but believe it to be correct.

Steel and Metal DIGEST

VOL. 13 MARCH, 1923 NO. 3

THE BUSINESS SITUATION

Trade expansion in February was even greater than in January and the upward tendency in prices of commodities was more pronounced last month than in the first month of the year. Railroad traffic continued unprecedentedly heavy for this season of the year. Manufacturing plants were impressively active and production, broadly speaking, was limited only by labor supply and transportation facilities. Among basic industries steel making was conspicuous because of the entering of the largest orders and the output of the heaviest tonnage in nearly three years. The copper situation was further improved through the removal of the menace of excessive stocks together with large sales of both wrought and unwrought metal.

It is pointed out that most of the business in general merchandise transacted was for delivery in the next few months, that is, for second quarter shipment. Some important sales were made for third quarter delivery but in general manufacturers were reluctant to make commitments which involve unknown factors, at least such as may possibly increase the cost of production. The labor situation, while encouraging because of full employment in the principal industries, is now causing some uneasiness. The talk of higher wages in the steel and textile industries at this time menaces the best interests of labor as well as of capital.

Higher Prices.

The higher prices prevailing for commodities in some lines are being hailed as an avenue to larger profits which are sadly needed, as the margin between earnings and expenses for many months has been uncomfortably narrow, but if the labor wage scale continues to rise, profits again will vanish. There is evidence, too, that industry is still unbalanced. Farmers' position has improved decidedly but there is room for further gain. It is pointed out that violent fluctuations in prices are only natural in an economic period such as we are in today and just as the drop in prices in 1921 may have been lower than justified by conditions then, so are the higher prices now being developed likely to reach a higher altitude than can be sustained except for a brief time.

Improved conditions in the agricultural districts are reflected in the fact that manufacturers of farm implements today are employing 70% to 80% of capacity, the largest degree of activity in two years. Grain and live stock have been moving unusually well for this season of the year and flour milling and meat packing operations have been exceptionally heavy.

Price Fluctuations.

Government statistics covering prices of commodities, are unusually interesting. In January, prices of commodities in general were 13% higher than a year ago but, at the same time, were 36% lower than the peak reached in May, 1920. It is notable that the advances in farm and food products in the last year have lagged behind those of most other essential commodities. February figures have not been compiled. Government statistics are enlightening although they are not up to the minute.

In January this year, the index price of all commodities was 156, using those of 1913 as a base. In January 1922 the index was 138. The latter was the minimum level since May 1920 when the

maximum level of 247 was attained. The February index when available will undoubtedly show an increase over 156 which was the level in November and December 1922 and January 1923. The February data will further emphasize the upward tendency since early in 1922.

Foreign Trade Trend.

Although the present level of commodity prices as a whole may not be too high to check domestic trade exchanges, it is high enough to excite apprehension and to further threaten our export trade. High economic authority at home and abroad attributes the recent rise in the pound sterling in terms of the dollar to the relative depreciation of the dollar. This means higher prices in the United States as compared with those prevailing in Great Britain. This movement tends to throw international trade into the hands of the British at the expense of the United States.

Mr. McKenna, with clear insight, pointed out that the influence of our increasing gold reserves and the effect of sending to us the South African gold production, to apply against the British debt, will be to accentuate the rise of prices in the United States above the English level and thus tend to restore to Great Britain the foreign trade that we gained during the war. If we are wise enough, however, not to utilize our increasing gold reserves for the basis of credit expansion and endeavor to check the tendency toward a further advance in prices of commodities here, we may improve our foreign trade position. There is real danger, however, in prices rising too far and too rapidly. More conservatism is necessary to temper the rise and thus limit the inevitable reaction.

New Economic Cycle.

It seems quite clear that with the advent of the Spring of 1920 the United States, and also Great Britain, entered a new economic cycle. At that time the long upward swing in prices—that began about 1895 and was still in progress when the world war began, accelerating the advance—culminated. Since that time we have been in choppy commercial and industrial seas. First in the trough and then on the crest of the wave. We are in the latter position today and there are sustaining factors which may prevent any precipitous decline in the near future. We may expect continued activity for some months but it would seem well not to lose sight of the recession which is sure to come in time.

We may expect some more or less violent fluctuations in prices of commodities in the secondary swing contained within the broad swing into which we entered early in 1920; at least until world economic conditions are more nearly stable. The general tendency in the long cycle that began in 1920 will be downward just as the general trend of prices in the preceding long cycle, from 1890 to 1920, was upward. It is the trend of the major cycle that is of prime importance in gauging the far future although we are more intimately concerned from month to month and from year to year with the secondary movement. To be successful in business one must have some degree of prevision and, what is more essential, the knowledge of how to translate the vision into wise action.

Preceding Cycle.

In the 30 years ended in 1920 with the general tendency of commodity prices upward, many business men were able to score successfully, notwithstanding serious mistakes, but in the next 30-year period, two of which have passed into history, we may anticipate greater business mortality unless different methods are pursued in the future from those generally used in the past. From now onward, the homely virtues inculcated by Poor Richard will have renewed efficacy for business men.

Temporarily, of course, business is thriving and a large volume is assured for the first half of this year. Beyond that the outlook is not so clear but some prominent economists believe that activity will continue throughout 1923 if not longer. Business developments abroad are having a modifying influence upon economic affairs at home.

Steel Building.

Contracts for steel building placed in February were larger even than in January and January orders were the largest since April 1922. The latter month's bookings were the heaviest of record. Orders verbally placed in February called for 190,000 tons of steel.

Building contracts now in force assure continued heavy construction operations through next Fall but it may well be that the contracting stage will have passed the peak in March. Already there are indications of decreased orders for steel construction, not so much because of decrease in demand as because of the oversold condition of struc-

tural mills that supply the fabricating shops and because of transportation conditions which interfere with deliveries of finished material and make difficult the assembling of raw material at the shops. Prices prevailing for building material too are becoming dangerously high and a further rise in wages of artisans in the building trades would seriously handicap building contractors. The urge for building has not disappeared but enthusiasm is dampened somewhat by high costs.

Railroad Equipment.

Railroad equipment situation is much the same as the building position. Since January 1st orders have been placed for 1,400 locomotives and for 30,000 cars, thus keeping up the high monthly average of contracting for cars in 1922 while in less than three months this year motive power ordered is equal to half of the orders placed with the locomotive shops in the whole of 1922. It is needless to repeat why railroads postponed buying of equipment for years; they are now being forced by heavy traffic, to make amends for delay in purchasing and with increased earnings they are able to withstand the higher cost of equipment.

Railroad equipment and building construction absorbed about 40% of the output of rolled steel last year. Oil companies and the automotive industry each consumed about 10%. Thus far in 1923 these same industries combined are taking about 60% of steel mill products. Steel orders and steel production in February were at a greater rate than at any time since March 1920, or a period of three years. The current month of March is likely to show a further gain in production but there is some doubt about orders maintaining the February rate.

A New Factor.

One new factor affecting the iron industry at home and abroad is the sudden change brought about by the occupation of the Ruhr district in Germany by France. Today France and Germany are buying American coke and there are similar export inquiries for American pig iron. Only a few months ago we were importing British, Belgian and French pig iron. The movement ceased almost abruptly when German and French production was curtailed for lack of necessary fuel, causing a sudden demand for British iron at rapidly rising prices. As a natural result of this change in foreign affairs prices of domestic iron and coke are rising. Should this export movement develop further heavier burdens would be placed upon the railroads.

Railroad car loadings continue record-breaking for this season of the year. During the week ended February 24th loadings of revenue freight amounted to 830,223 cars. As compared with the corresponding week last year this is a gain of 101,000 cars. Under these conditions it is not surprising that there should be predictions that the railroads will buy equipment this year together with improvements, which will require the expenditure of $700,000,000 which is $200,000,000 more than the average annual expenditure in the last ten years.

Traffic and Rail Earnings.

In the first ten weeks of this year railroad car loadings averaged 10% higher than during the corresponding period of 1922. The large traffic movement is reflected in January earnings of Class 1 roads amounting to $60,654,700, representing a return on an annual basis of 5.64% on tentative valuation. This is within a little over $5,000,000 of the amount designated by the Interstate Commerce Commission as a fair and adequate return on their tentative property valuation. January was thus the best month for the railroads from the standpoint of earnings since the properties were returned to their owners by the Government. The increase in the net income in January was in some measure due to the greater efficiency in operation.

Freight Congestion.

There is much to be desired in the transportation situation from the standpoint of shippers. Freight congestion on eastern roads has been severe for several months during which time New England has been largely embargoed. Blast furnaces and steel mills have been able to obtain permits for shipments into the New England territory only

occasionally. Carriers have suffered more from shortage of motive power than from lack of cars but their difficulties in large measure, so far as New England is concerned, have been due to heavy snowfall and other Winter weather restrictions. Some of the largest melters of pig iron in New England who usually carry stocks sufficient for six months to a year's operations report reserve supplies down to one month's needs. Fortunately we have reached the time of year when weather conditions will be more favorable for traffic movement.

Copper Industry.

Traffic conditions had but small retarding influence upon the copper industry, in fact, February production and sales, if not shipments, were the largest in many months. The vigorous buying movement resulted in an advance of 2c a pound on unwrought copper and 2c to 3¼c a pound on wrought copper and brass. The most encouraging feature was the continued heavy domestic consumption. Larger exports too that were pronounced in January were continued in February. There is reason to believe that during the first two months exports averaged 70,000,000 pounds a month against an average of nearly 60,000,000 pounds a month in 1922. The weak link in the chain, however, is that industrial and economic conditions in Europe, while improved, leave much to be desired and there is reason for skepticism in regard to continuing exports of American copper at the January-February rate. Speculative enthusiasm also, which was called in to help the rise, does not give firm foundation for real prosperity.

A general review of the business situation impresses one with the fact that progress in readjustment is being made abroad as well as at home, but the community must be prepared for sudden and quick changes in commodity prices for some time longer. Gradually the fluctuations in prices will grow narrower. In February the advance in prices, accompanying trade expansion, was most pronounced.

PROFITING BY EXPERIENCE

Sharp advances in fininshed steel prices have occurred since the first of the year, although the advances in 1922 were supposed to be fully sufficient to cover the increases in cost of production due to coal conditions and the general wage advance in the iron and steel industry. At the same time buyers of steel have shown an almost feverish anxiety to buy on order or on contract. Mills state that buyers if left to themselves would bid the steel market up farther.

In practically all quarters it is being said that the steel market has been strengthening at a dangerously rapid rate and the fear is expressed that trouble will follow if more care is not exercised.

At the same time it is being said that the memory of the very painful liquidation of a couple years ago is so fresh that men are going to profit by experience and will not allow themselves to be placed in an uncomfortable position this time.

Such statements are made in all sincerity, and it is reasonable to assume that all factors in the trade, whether sellers or buyers, have positively made up their minds not to be caught again, the producer with fancy priced material in inventory, a high manufacturing cost and an order book that does not admit of shipments against it, and the buyer with stocks of high priced steel or finished manufactures and obligations to mills which it would be more or less ruinous to stand back of.

The intention, of course, is to watch the market situation closely and be at the shelter house when the storm comes, to keep one eye on the sky and the other eye on the shelter house, gradually approaching the shelter as the time comes.

The question is whether the time can be gauged accurately. Many questions are being asked as to the statistical occurrences of 1920, in order to profit by the experience of that year. One of these questions is as to when steel prices stopped advancing and when steel production began declining. The answer is that the American Metal Market marked up its quotations on finished steel products for the last time in 1920 on August 16th, and the marking up was rather a substantial one, while it was at the close of September that some independents began curtailing production on account of lack of interest on the part of their

customers. The decline in total production did not come until November, for in October the Steel Corporation increased its production a shade more than the independents decreased theirs.

Another question is as to the supply of steel now and at this same date in 1920. The answer to this question is interesting. The March production is just about the same, but this time it has been preceded by a much heavier production and it is likely to be followed by much heavier production, than March of 1920.

From the 30-company report for last month it may be estimated that ingot production last month was at a rate of about 44,000,000 tons a year. Production was increasing during February, so that the rate at the end of the month was above the average of the month, and production is increasing farther this month. It is safe to assume that production this month will be well above a 45,000,000 ton rate. The rate in March, 1920, was just a shade above 45,000,000 tons.

The March outputs are almost the same, with this present March showing a slight advantage. The present period has a great advantage. The production of March, 1920, represented a recovery from a greatly restricted production, caused by the steel strike of September 22, 1919, and the general coal strike of November 1, 1919. Immediately after the month, again, came the "outlaw" rail strikes, started April 1st, whereby in 1920 the April rate of ingot production was 17% under the March rate.

By a careful scrutiny of reports made at the time, production of ingots may be set at 7,000,000 tons in the last three months of 1919 and at 31,500,000 tons in the first nine months of 1920, a total of 38,500,000 tons for the 12 months October 1, 1919, to September 30, 1920. The estimate is probably correct within a very few hundred thousand tons.

This time, on the other hand, we have had heavy production since last October when there was a rate of 40,000,000 tons a year. Assuming a production rate of 45,000,000 tons, although the rate now is above that, to the end of next September, there will be a production in the 12 months October 1, 1922, to September 30, 1923, of fully 43,000,000 tons, or about 5,000,000 tons above the production of three years ago.

While there is a disposition to see a imilarity between now and 1920, it should be noted that at the beginning of 1920 there was a recognized shortage. The idea at that time was that it would require some time to make up the shortage, and the unexpected curtailment by the railroad strikes prolonged the shortage. This year was not entered with the idea that there was a shortage in existence. There was an expectation of heavy consumption. That expectation will be realized, but production must also be considered.

DURATION OF INDUSTRIAL ACTIVITY

Many observers lately have been expressing the opinion that the general average of commodity prices has reached its high point and will not advance farther, there being, perhaps, advances in some lines, offset by declines in others. The Bureau of Labor index number of commodity prices at wholesale, has not changed lately, being at 156 for November 15th, December 15th and January 15th.

As to the steel market, again, the feeling lately has been that the heavy buying demand of the past three months, with the pronounced price advances of the past two months, could not possibly last much longer.

Granting that such opinions are correct, what follows as to the duration of industrial activity? Surely we should be unwilling to admit that there can be industrial activity only when prices are advancing. It is conceivable that men should make and wear clothes, produce and consume food, even build houses and live in them, during a period of stationary prices.

In steel market movements there comes a time when "the edge is off the market," but the experience has been that the production, shipment and consumption of steel continues thereafter, and the volume of movement may even increase. There comes a time when buyers will no longer buy, but they still require the steel they have already bought. Six months is not too short a time to allow for this interval.

The industrial activity now existing is due very largely to engagements made for construction work, and to construction work definitely in prospect, for which engagements have not yet been made. This work will be carried through and industrial activity will continue while the work is being done. The

trading markets may become relatively inactive without production, distribution and consumption being affected. The probability is that if any mistake is being made now it is being made in the direction of underestimating the time it will take to complete the work now in hand. Labor shortage and other impediments will probably string out the activity over a longer period than now expected.

Industrial activity may be divided broadly into two classes, the one class involving activity that can continue indefinitely, provided underlying conditions are satisfactory, the other class involving activity necessarily temporary in character. The major portion of the present activity belongs to the first class. Even railroad expenditures are to be placed in that class. The railroads have been making purchases in line with their earnings and credit, and neither of these influences ought to decrease in force. Of course railroads do not need to buy freight cars every year at the rate of the past year, but when they are through with cars they have electrification and various other improvements, all dependent upon earnings and credit.

Only two of the important activities of the present time may be regarded as distinctly temporary in character, house building and road building. Just now savings of the past and prospective savings of the future are being spent freely in dwelling house construction. Last year was a very active one and this year promises, if there is any change, still greater activity. Road building and other public improvements, dependent on bond issues, are at a high level. As the bonds issued involve interest and sinking funds, to be met by taxation, the piling up of these bonds cannot be continued indefinitely. Perhaps some of the work is undertaken now in fear that in the not distant future the privilege of issuing tax exempt bonds will be withdrawn.

Indefinite continuance of practically all the remaining activity is possible provided things are not overdone. Prices and wages may go too high. We do not know that they are not too high now, but even at the worst the industrial activity, apart from market activity, is bound to continue for many months.

THE OBSERVER'S CORNER

The Observer has a great deal of sympathy for those who are being criticized for wanting the United States to adopt a more liberal immigration policy. The criticisms are various, the chief being that these men want a large supply of common labor so that they may "exploit" it, to use a term sometimes employed. Now, that is merely calling names. Once you adopt such a conception of the relation between one man and another you can apply it to almost anything. The board of directors could be regarded as "expoiting" the mill superintendent it appoints. The school board could be said to "exploit" the school teacher. If the sheet metal shop makes larger dividends than the sheet mill it might be said to be "exploiting" the sheet mill. Where are you going to draw the line between exploiting and transacting legitimate business?

The captains of industry are charged with simply wanting to get rich. Some of the critics occupy an awkward if not a wholly indefensible position. They admit, in theory, that it is all right for a man to wish to get rich, but they say they object only to the method—what they call the method—of employing "cheap" labor. Such a claim is ridiculous. Labor is obtained in the open market, at going rates. Some people object to labor being spoken of as a market commodity, but as movie actors, magazine writers and various other people sell their services in the market and even talk without any shamefacedness of "the market" for the service they render, the Observer can see no objection to one's referring to the labor market. Now, labor being obtained in the open market, at going rates, one captain of industry is competing with another. If he is trying to get rich by employing common labor, such as is furnished by immigration, against his competitor employing higher class labor we should have it that that the most successful manufacturers are those that employ the most and the commonest labor. Everyone knows that is not so. The successful manufacturers have been those who were most skillful in adopting labor saving machinery, whereby one skilled man takes the place

of several men of the common labor class.

Now the captains of industry do not want to get rich for the sake of taking their riches out of the business and spending money in riotous living. They want to build up the business, invest their profits, and furnish more employment. The look at it that they do not wish to "bear" the common labor market. They want to make more and more jobs. Perhaps some of them carry their philosophy too far and delude themselves into thinking they are greater public benefactors than the public either needs or wants, but we should not be too hard upon people who carry things a little too far. There are men who have played golf or solitaire too much, or who have frequently slept too long. We do not all do everything in just the right proportion.

This recent teaching of heredity, of the influence of the unconscious, the instincts built up by the habits of tens or hundreds of thousands of years of the development of the human mind, should make us cautious in criticizing the judgment of others. It may not be judgment, but instinct and heredity. It is only very recently, in the history of the development of the mind, that the Romans were having most of their work done by slaves. The Romans themselves did a little sidestepping in the matter. No doubt they considered war a biological necessity. It was quite humane to make prisoners of your enemies instead of slaughtering them, but once they were prisoners you could hardly afford to pension them, so the natural thing was to make them work for their board. Much more recently, in times almost up to the minute biologically speaking, we have had serfs. Then, again, it is only a shade over 60 years since we had slaves in the United States, and it took quite a lot of agitation to get it into the heads of those who were not slave owners that slavery ought to be abolished. From what has been learned in recent years about the working of the human mind, things like these have a great influence in shaping our likes and dislikes, however little our judgment or conscious mind recognizes the fact.

Very probably the advocates of freer immigration would not thank the Observer for defending them by the foregoing argument, but as the Observer is not seeking thanks he does not care.

There is no love lost between the advocates of freer immigration and the advocates of more restricted immigration. Each group is trying to discover faults in the other. When, for instance, the labor unions stand for restriction of immigration the other side points to the faults of the labor union principles and would condemn all advocates of restricted immigration on account of the company they are keeping, and that is really rather hard on a great many people.

Once we join issue on a given subject we are rather prone to forget some of our principles in the strenuous effort to make points. We all ought to be, and the Observer honestly believes that the great majority of us really are, very anxious that this country of ours should grow greater and greater in all the things that are really good. Yet we often refuse to admit it in respect of those who differ with us in conclusion.

Now, Lord Morley remarked: "Harmony of aim, not identity of conclusion, is the secret of sympathetic life." There are few epigrams better worth remembering and applying in our daily life than this. It involves no great strain of the intellect, if one is merely making an honest effort to think straight, to recognize that there is quite a good bit of harmony of aim between these two opposing groups. The conclusion of one group is that we ought to "Americanize" everybody, and not adopt any more than we can Americanize. The conclusion of another group is that we ought to build a great many things and make a great many things, and for that a great deal of "common labor" is required. Both conclusions are consistent with the idea of making this country greater and better. Yet there is no sympathy between the two groups because neither party is disposed to recognize that there is any harmony of aim. That is grievous fault. Each one of us will get along better and will be more contented if he strives to see that the aim of other men, differing in conclusion, is to make this country of ours better. When we differ, let us argue about conclusions rather than venture to criticize aims.

CAN IT LAST?

By Alexander Vincent of the Brookmire Economic Service, Inc.

There have resulted two outstanding reactions from the unprecedented liquidation that characterized general business in 1920. The first of these was apparent all during the latter part of 1921 and practically through all of last year; namely, an uncertainty and in some cases, an unwillingness among men to recognize the fact that business had indeed begun to improve. Too slowly the realization finally spread of the fact that we truly have been in a period of prosperity and that the developments of the past year and a half have been something decidedly more than a reaction from the crash in values during 1920; in other words, that they have been basically the result of underlying or fundamental conditions.

Now that the developments themselves have forced upon men recognition of the fact that we are truly in a period of prosperity comes the second reaction which, it would seem, has as its basis precisely the same conditions as gave rise to the reaction already considered; namely, men are now questioning if the prosperity that is admitted can possibly last. Is it rather simply an artificial, bubble-like development that is liable to burst without warning? More particularly, men like to question: Even granting that the prosperity that we see around is basically sound, can it long continue because of unsettled European conditions, or, in other cases, because of the relatively poor purchasing power of the agricultural groups?

In last analysis, these reactions can be recognized as the really natural results of the drastic declines in 1920. The experience is so recent in men's minds; pessimism was then so generally widespread; men had burned to badly in their ventures because of the undue optimism that they had indulged in during 1919; — all these considerations naturally made for a reaction of caution, a period of fear, a period in which no matter what might be the developments, men found it hard to get away from or to forget their recent experience and going to the other extreme, began to view all developments, no matter how fundamentally sound, with a caution and distrust that invariably begets just such a situation as has existed for the past two years or so.

Let us, first of all, consider briefly what justification, if any, those had, who through 1921 and 1922 refused to admit that conditions had improved or that there was any fundamental basis for expecting an improvement in business. As a matter of fact, men analyzing fundamental factors not only were able to assure themselves during the latter part of 1920 that conditions were rapidly approaching the bottom but in a number of instances, economists definitely made the prediction in November 1920 that the middle of 1921 would witness an upturn in general business as reflected by the commodity price level. This is a matter of record that can be investigated by anyone interested. The point to be stressed at present, however, is that the upturn that did begin to develop in the middle of 1921 was a fundamentally sound upturn and was the natural result of the working out of a combination of factors accepted as exerting a controlling force upon the trend of general business conditions.

Various groups of economists, where a prediction was made of the present rise in the price level, based their opinions on varying groups of factors. The group that the writer of this article has in mind, however, consists of speculation, physical volume of production, ratio of exports to imports, turn-over of bank deposits, domestic commercial paper rates, and the London open market rate. The justification for using this group of factors as a forecasting medium rests in the fact that from 1904 to date or, in other words, as far back as it is possible to secure statistical data covering these items, these factors in combination have succeeded with a very admirable degree of accuracy in forecasting six months in advance future turns in commodity prices. Given then that these factors in combination have succeeded in the past in forecasting future price trends, it is interesting to note, in passing, that that same group of factors is still favorable today

and from the record since 1904, justifies the conclusion that we can expect continued improvement in general business to last at least six months longer.

A very interesting article could be written in analyzing the present positions of the various six factors enumerated above and contrasting the present positions with the positions of the same factors at the beginning of the present upward movement in prices. Such a discussion here, however, would be rather beside our point since the purpose of our present discussion is to establish the fact that the movement begun in the middle of 1921 is truly a fundamental movement and not a flare-back or unsound reaction from the 1920 liquidation. It cannot be out of place, however to remark in passing, that unquestionably the position of various factors is not today as bullish, naturally, as it was at the time the movement started. In other words, as the supply of goods catches up with demand or the physical volume of goods produced increases, that factor becomes less and less bullish on the general situation; as security prices mount on higher and higher and tend to make speculation less attractive, that factor in turn begins to exert a less and less favorable influence on the composite as a whole, and so on all along the line.

Me might summarize then what we have said thus far by saying that the present movement is a sound movement and is the result of the operation of basic fundamental laws; the principal basis for this assertion being two-fold; namely, first, that an analysis of fundamentals enabled one to forecast its coming six months before it actually developed, and second, the fact that an analysis of those same basic factors that have a definite correlation to general price trends over a period of more than twenty years, reveals that they are still in a favorable position and indicate continued underlying strength.

The same temerity that characterized the attitude of many business men last year and caused them to doubt that things had actually changed for the better or that the movement was sound, is now operating to cause the question being frequently asked whether or not the present movement can last long. The chief arguments advanced to boost this contention, as indicated in a previous paragraph, are, first of all, the fact that the unsettlement in European conditions makes it impossible for us to enjoy a genuine, well-rounded out period of prosperity, while still others advance the relatively poor purchasing power of the agricultural group as establishing the same contention. It is interesting to note, that for the greater part the men who are advancing these arguments today as evidence of the fact that the present period of prosperity cannot continue, were advancing those same arguments six and twelve months ago as evidence of the fact that a period of prosperity actually could not begin.

Various answers readily suggest themselves to this line of reasoning:

1. Even the most cursory kind of examination of various periods of prosperity in the past will bring out the fact that active and plentiful purchasing power on the part of all the big groups of purchasers is not necessary at any one time, in order to produce a true period of prosperity. Whole cycles may be gone through, an entire period of improvement and prosperity may be experienced, without, let us say, the building industry taking part in it; others may be gone through without the farmer playing his full proportionate share in purchasing and so on. In short, periods of prosperity and, conversely, periods of depression are the results not of developments in one single item or along one particular line but rather they are the results of the balance of a general group of factors uniting their force in one direction or another.

2. The best possible answer to any question as to whether or not we can enjoy prosperity in this country while Europe is still in an uncertain state, is found in the fact that we actually have experienced that very result and are even now experiencing it. The present rise in commodity prices which has already amounted to something over 30% from the low point of 1921 is compelling evidence that this country has prospered and it is worth noting that this movement began at a time when European conditions were much more confused than they are now.

3. From the viewpoint of lasting results, the most far reaching effects of the war on American business were the

exceptionally heavy expansion of our productive capacity and a piling up of unsatisfied demands due to concentrated effort on production of articles and commodities needed for the prosecution of the war. This resulted in pulling down to rock bottom practically, our supply of goods on hand and since the readjustment began, effort has been expended almost exclusively toward catching up with that accumulated demand. Thus, despite our added production facilities and despite the activity in many lines, it has been only within recent months that our supply of goods has begun to catch up with our requirements so that up to the present time we have not been interested as a nation particularly in selling goods abroad since as pointed out, our prime endeavors and our prime needs have been along the lines of supplying domestic markets with goods. This consideration serves still further to explain why it was possible to have begun a period of prosperity, why it is possible still to continue prosperous despite the relative inactivity of so powerful a source of buying as is represented by foreign markets.

The facts considered in the last paragraph serve to shed some light on the question as to what effect we may expect the failure of European countries to enter our markets to have upon the development of the present period of prosperity and period of actively advancing prices. In other words, as we approach the point at which our supply of goods parallels our domestic demand, we also approach the point at which the European situation grows and develops in importance, since, if domestic production is to be expanded very much beyond its present running rate it will mean sooner or later a piling up of surplus products which must, in last analysis, find markets abroad because of the inability of domestic markets to consume them. This, then means that from this point on the failure of settlement in the European situation has a more telling effect on our domestic situation than it has had in the past, and the conclusion must inevitably be reached that the failure of European consumers to enter our markets in normal volume must have the effect of cutting down and shortening the period of prosperity that we are now enjoying.

A tug of war is going on all the time in the business world; a tug of war among the various factors entering the economic situation at a given time. Some of these factors are on that side of the rope pulling toward prosperity, others are on the side pulling toward depression, some for given periods may be neutral. The situation so far, has been one in which the factors pulling toward prosperity have been more numerous and certainly, more powerful, than those pulling toward depression. The situation up to the present has been one in which the peculiar conditions we have considered have rather negatived the influence of what we may call the European factor in that tug of war. From now on, because of the extent to which our physical volume of production has caught up with our domestic needs, that European factor will begin to exert more and more influence on the bear side of the tug of war. It will not control the situation, however, until such time as the factors pulling on the prosperity side weaken and grow less powerful than is their present position. The net result of any one factor then is at most to shorten or to prolong a situation which arises as a result of a composite of many factors working one way or another. The effect of a single factor is never to give rise to one of these major movements.

We might conclude then by saying that for the greater part, the fears expressed in different quarters as to the unsoundness of present developments and the uncertainty of their continuing are rather psychological results of the depression of 1920 than fundamental and sound conclusions. The present period of prosperity from its beginning in the middle of 1921 to date has been not a technical flurry or reaction from the drastic liquidation of 1920 but rather has been a fundamentally sound movement—the result of the operation of economic conditions and laws. Finally, attempts to establish that the present movement must crash precipitately because of the failure to establish European stability are unsound since a review of economic history is replete with evidence tending to show that major movements of prosperity or depression are not the result of any one or two single factors but are rather the result of a combination of factors exerting their force in one direction or another.

HERBERT HOOVER TELLS SOME THINGS ABOUT COAL

Mr. Herbert Hoover, member of President Harding's cabinet, has written his views on the coal situation for a recent issue of **Industrial Management**, which is here reproduced:

The long continued investigation of the Department of Commerce with respect to the coal and transportation industries has led the Department to the firm conclusion that the difficulties and bad functioning of the bituminous coal industry in a large degree flow from the insufficiency of transportation.

Since the war there has been in normal business years a shortage of coal transportation for at least three months of the year, and in prosperous business times this shortage of transportation has extended almost throughout the whole year, as in the case of 1920.

The bituminous coal industry can produce about 16,000,000 tons per week. The demand varies from 8,000,000 tons to 13,000,000 tons per week. The railways can apparently carry a maximum of about 11,000,000 tons of bituminous as a continuous performance. A great number of vicious cycles have resulted at least in part from this cause.

First, there is at once created a fictitious price of coal to the consumer. In the year 1920 the price of spot coal rose over 300%, due almost entirely to transportation shortage in the face of maximum movement. A 60% excess price exists today for the same reason. In dull season the industry loses money. The constant movement of the industry from famine to feast renders it most speculative and leads to over-expansion.

Second, in time of car shortage the railways are compelled to divide the cars on some basis of equality among the different producers. This gives equality of cars to the high cost producer and largely destroys competitive action, keeps the high cost mine in the field, and maintains over-expansion.

Third, in maintaining all the mines, the equality of car distribution gives them only intermittent employment. Overhead costs are greatly increased.

Forth, with intermittent employment, labor endeavors to build up an annual income out of short time employment, which has necessarily pushed the day's wage and piece work rate to very high levels.

Fifth, some fringe of the workers are of necessity underpaid, as no basis of day's pay could be devised that would give an annual living to that borderland of workers who have the lowest number of days annual employment. From this fact flow the discontent, unrest, misery and difficulty which fundamentally bring about strikes and violence.

In summary: The public pays 30% more for its coal than would be necessary in the free flow of competition; the industry is speculative and intermittently unprofitable to the operator; labor is in constant difficulties; some part of it underpaid, some part overpaid in comparison with farmers or other workers.

The remedy lies in more transportation and also in storage, especially by the railways, in slack periods. There are other causes and other troubles, but their part in the bad functioning of the industry could be better analyzed if we first had transportation enough.

AUTOMOBILE TRANSPORTATION OF FREIGHT

"Early ideas for the operation of common carrier railroads were that they should be built by the government or by corporations, to be operated by the common public, or whoever might wish to place a car upon the road for hauling freight," says the **Railway Review.** "This idea, as impraticable as it would now seem to be, probably originated from the manner of operating boats on the canals. Any person desiring to engage in the freight carrying business placed a boat on the canal and paid toll for the use of the same.

"The proposed scheme which turned out to be a failure with the railroads is now coming to pass in the operation of power-driven vehicles on the public highways. People engaged in freight transportation business operate automobile trucks on the highways and pursue both local and interurban transportation business merely by paying state and city taxes on the ownership of such vehicles. States, counties and townships tax the public to build and maintain such roads, and any and all who desire to engage in the freight transportation business may do so by paying a moderate tax or license

fee for operating automobile trucks. The volume of freight thus transported has reached a considerable tonnage, and the wear and tear on the roads has become excessive. No sooner is a road improved with a hard surface than enterprising persons are quick to see the advantage of such a route for freight carriers, and privately organized companies have put on freight 'lines,' some of which operate many cars, on night schedules as well as on day runs.

"That there is demand for such service need not be dwelt upon. The radius within which such transportation can be carried on successfuly is probably relatively short. A year or two ago we estimated that local freight transportation for automobile trucks could possibly be conducted successfully within a radius such that a truck could make a return trip over the route in a day's run, or say about 50 miles at the outside. The freight thus transported is usually of the character of what is known as less-than-carload shipments in the railroad business. The volume of freight of this description is of course large, and the question as to what extent such transportation will cut into the railroad busines is now being debated rather seriously. The paper read before the Society of Automotive Engineers at the recent annual dinner in New York, by Vice-President Elisha Lee, of the Pennsylvania R. R., published in abstract in the Railway Review, January 20th, considers this question in a broad manner and discusses many phases of it."

CANADIAN VIEW OF THE LIVING WAGE

Iron and Steel of Canada editorializes on this very important subject as follows:

In Great Britain just now, a good deal is being said and written anent what is called "the living wage." The big showing made by the Labor party at the last general election is, no doubt, responsible for the prominence that this subject has achieved in that country. For there can be little or no question but that, should the Labor party obtain a parliamentary majority at any time, strong efforts would be made to establish a "living wage" by means of legislation.

Nor is it only in Great Britain that this question is likely to be prolific of ample discussion in the near future. As part of the announced program of a large section of organized labor and of members of the so-called progressive element in the newly-elected United States Congress, the living wage seems likely to be discussed even more in the future than in the recent past. Indeed, one United States senator, who has enjoyed a reputation for constructive ideas, has announced that he intends to propose a law guaranteeing railroad workers a living wage, although the Transportation Act already contains rules under which it is possible easily to arrive at fair wages for railway employees. A proposal that is arousing so much interest in Great Britain and the United States is likely to be canvassed pretty extensively in this country, too.

In these circumstances, it is advisable to get some idea as to what the expression, a "living wage" means in the mouths of those who use it so glibly. It appears that a living wage from the organized labor standpoint means a purely imaginary amount that scientific budget makers think all workers in a given class of employment should have. In the case of the United States railroad shopmen, their "economists" figured out that a living wage for shopmen ought to be something over $2,000 annually. The United States miners have set similar standards for themselves—perhaps because they employ the same "economists."

In all of labor's discussion of the living wage, what a given industry can pay is ignored. In other words the issue from labor's standpoint is not what labor produces but what the workers would like to have in order to maintain a certain scale of living. This phase of the matter is very illuminating as being typical 'of the temper in which organized labor, in so many lands, approaches the problem of wages today.

TOPICAL TALKS ON IRON

CXVIII - Base Prices

The majority of finished steel products are specified as to three dimensions, while most of the remainder are specified as to two dimensions. There are a few rounds, squares, hexagons, etc., specified nominally as to one dimension only but the shape is another requisite, so that shape helps to make variety.

Accordingly there is an enormous number of different sizes, and as cost of production varies considerably as to size and shape it is necessary that the materials be priced differently. There are also differences in physical characteristics and in surface finish. It would be quite impossible to quote each size and description of material separately, hence the system of base prices and differentials or extras has grown up.

Although merchant bars are ordinarily shipped in random lengths, although more or less uniform, they run into the greatest size variety of any finished steel product, on account of differences in shape. A plate or sheet, while specified as to the third dimension, length, is always rectangular in cross section, hence presents less variety in cross section than merchant bars.

In bars, rounds and squares are very common, but there are also ovals, half ovals, hexagons, etc. In flats there is a wide variety, as both width and thickness vary. Then in bars there is a countless variety of shapes. Beam and channel sections under 3 inches in depth are classed as bars, and angles smaller than 2x3 inches. There are innumerable special sections, for particular purposes, down to "jail bar", of which there are several forms.

As flats grow thinner they pass from the merchant bar class to the band class, and then from the band class to the hoop class. Then there comes a complication, for in the trade mind there is moderately clear distinction between hoops as a class and hot rolled strip as a class, yet it would be difficult if not impossible to write a definition which would state in a few words where hoops stop and hot rolled strips begin. Roughly speaking hot rolled strips have more width in proportion to thickness than do hoops. The card of extras does not make the distinction, as it goes by groups of sizes and covers bands, hoops and hot rolled strips. The mill makes the distinction, as a hoop mill will not undertake to roll some of the sizes a strip mill handles to advantage. Prior to the revision of May, 1918, under the auspices of the War Industries Board bands had been on the merchant bar card. In the transfer the relations of extras on bands were not changed, but they were all reduced $4 a ton. They were being put into a class which was carrying $12 a ton higher base price and thus bands were really advanced $8 a ton by the process. The bar base was 2.90c and the hoop base 3.50c.

Plates not thinner than ¼ inch and not wider or longer than certain dimensions command a uniform price, the width and length extras applying only on particularly large plates. There are few finished steel products of which so large a tonnage is actually invoiced at the base price. Plate mills also roll material thinner than ¼ inch and so far as size goes they overlap with sheets. In the overlapped area process of manufacture determines whether the material is a plate or a sheet. The heavy gauge sheets are produced by a jobbing mill, the product being designated as "blue annealed sheets." Ordinarily the product of the jobbing mill is annealed openly, not piled in a box, while plates are not annealed. There is also some difference as to accuracy of section, the jobbing mill being able to produce a more uniform section than the plate mill. The typical jobbing mill has the top roll balanced and driven while with a sheet mill only the bottom roll is driven from the engine, the top roll being driven by friction with the bottom roll. The product of the sheet mill is commonly box annealed. The fact that the lighter gauges of blue annealed sheets, produced by jobbing mills, overlap the heavier gauges of box annealed sheets produced by sheet mills, makes no con-

fusion for the reason that the process of annealing is different and thus the products are distinguished by finish when they are not distinguished by size.

Structural shapes run into hundreds of different descriptions yet the variety is much less than in bars or sheets. Beams, for instance, are produced in different depths, and each depth is produced in several different weights per foot, the rolls being the same, but separated more or less on the final pass to produce the desired weight. The change is relatively chiefly in the web, i.e., an addition of one eighth of an inch to the thickness of the web involves an increase of only one-eighth of an inch in the width of flange, the latter being a small matter. Almost the entire tonnage of ordinary structural shapes rolled goes at the base price.

No attempt will be made here to discuss wire products in detail. Frank Baackes, of the American Steel & Wire Company, testified in the "Pittsburgh plus" case of the Federal Trade Commission that his company makes 30,000 different products.

Welded tubular goods are sold more by character of product, adapted to the particular use, than by mere size. There are more than 20 descriptions of what could be called two inch pipe, variously classified as merchant pipe, boiler tubes, different kinds of tubing for wells, etc.

Of the total of all steel mill products that are sold direct from the hot rolls without further manufacture such as welding into pipe, drawing into wire, etc., the invoice price of more than 75% of the total tonnage is determined if the base price on the following lines are given: Bars, shapes, plates, hoops and bands, hot rolled strips, blue annealed sheets and black sheets. Thus it requires very little by way of actual figures to show approximately at what level the steel market stands in its almost continuous upward and downward swings.

Of the products that involve further manufacture after hot rolling there are likewise groups commanded each by a single base price. Galvanized sheets involve chiefly gauge differentials, there being few extras as to size. Tin plate involves few size extras, but varies by nominal weight, which really means thickness. While most steel products are sold and invoiced by weight tin plate is invoiced by area. The commonly quoted price is per "base box", a base box being 31,360 square inches, originally derived from a box of 112 sheets, 14x20 inches. While the material goes out in a wooden box, the box is not the technical box, but is a "case" or "package," which may contain somewhat more or somewhat less than a base box. By a "ratio book" the number of base boxes in a given number of packages is ascertained and the invoice is for that number of base boxes. The stating of weight is to designate the thickness. The standard is 100 pounds. In 100-pound plates, 31,360 square inches will weigh 100 pounds, within a limit of tolerance. In 90-pound plates the same area will weigh about 90 pounds, and so on. There are established differentials for the different weights above and below the base price.

Outside of wire products, tubular goods require the greatest number of quotations to set prices. In merchant pipe a market report will mention simply what is called the "basing discount," but this basing discount is not governing year after year as is, for instance, the base price on merchant bars, which is applicable to an extra list which does not ordinarily change. A complete quotation on merchant pipe gives discounts on all sizes. The list is in cents per foot and has no relation to cost of manufacture, being simply so arranged that each size is approximately 10 cents a pound. As cost of manufacture varies according to size, there are different discounts for different sizes. Both the smaller sizes and the larger sizes cost more to manufacture than the intermediate sizes. At various times the cheapest pipe has been ¾ to 6-inch, or ¾ to 3 inch or 1 to 3-inch. The quotation cards therefore give separate discounts for different groups of sizes. The term "basing discount" is merely trade usage, and simply means the greatest of the various discounts on the quotation card. The basing discount does not control the other discounts and on a price revision some discounts may

change and not others. There are separate discounts on extra strong and double extra strong merchant pipe, and galvanized pipe has its own discounts. Roughly speaking one half of the pipe mill product is in merchant pipe, almost an equal tonnage being made in line pipe and "oil country goods" generally, besides which there are boiler tubes, water well casing, and various other items. Each item in oil country goods is priced separately, in cents per foot. Line pipe is quoted in discounts from list, according to size.

COST OF OVER-DEVELOPMENT IN COAL INDUSTRY

The Federal Coal Commission concludes, on the basis of unquestionable data, that there are approximately two hundred thousand more coal miners in the United States than are needed, even for the most active and effective operation of the coal industry. The Commission also emphasizes in its recent report the over-investment in the business which now provides for a capacity largely in excess of eight hundred million tons a year, whereas the maximum that the country has ever been able to absorb and export is much less than six hundred million tons. The coal user is vitally concerned in knowing what this over-development means to him and more still in knowing how the situation may be corrected.

If one assumes that these two hundred thousand extra miners get on the average of fifteen hundred dollars a year, which is approximately the rate estimated for all miners in the United States by the Bureau of Labor Statistics the burden on the coal user from this cause would be three hundred million dollars a year in unnecessary wages. The extra investment in the business must amount to something like five hundred million dollars on which insurance, taxes, interest, depreciation and profit are undoubtedly expected by the owners. Probably twenty per cent. a year would not be an unreasonable estimate of the extent of these charges on this capital. This percentage would amount to approximately one hundred million dollars per year of expense for needless capital.

The total of wages and interest burden of the coal user thus can be computed to be four hundred million dollars, or approximately seventy-five cents per ton for all the coal used in the United States. Of course it is idle to assume that all this could be saved, for some of the earnings of surplus miners would have to go to pay for the work of useful employees were their work increased to the point that we could get rid of all of the needless workers. Also some of the surplus investment doubtless will shortly become productive or may be necessary in order to furnish a balance wheel on prices for coal. Nevertheless, a good portion of the seventy-five cents per ton is waste, profitable neither to mine workers, mine owner nor coal user.

One very constructive suggestion for reduction of the number of surplus mine workers is that other branches of industry shall look about in the coal-mine regions to recruit forces that are now being built up for increased capacity operation of industry. Certainly, those industries that are complaining regarding shortage of workers should do this. It will be much more to the point for industry to hire a few miners and teach them other skilled or unskilled trades than for these industries to complain regarding the effect of the immigration restrictions which are claimed to result in labor shortage.

Anything that will relieve the coal industry of part of its burden of surplus labor and surplus investment is worth while. It will benefit the coal industry to some slight extent, but it will benefit to a considerable extent the users of coal.—**Power.**

TECHNICAL AND COMMERCIAL ABSTRACTS

Industrial Relations—In order to promote a better understanding between employers and workers, and avoid the strife that has been so common in the past, the manufacturers and the workers in the silk industry in Paterson, N. J., took steps recently in the formation of a plan for attaining these objects. An industrial conference body, composed of 25 manufacturers, 25 workers and 25 citizens of Paterson, and a representative of the Department of Labor, will attempt to adjust the various controversies as they arise. There are estimated to be about 25,000 workers in the silk mills of the city, and with their representatives it is proposed to "bring about an intensive discussion of all the points or subjects properly coming before it in as clear and straightforward a way as possible, without unnecessary heat or passion and without discrimination. It was said that the first matter to come before the conference was the adjustment of the work week, which the manufacturers desired to make 48 hours, instead of 44. It is as yet too soon to determine the probability of the success of the plan, but its development will be watched by all employers as well as all those in any way interested in management.—**Industrial Management.**

IRON AND STEEL

Effect of Manganese on Steel.—A method of preparing very pure iron has been developed at the Bureau of Standards, and with this iron as a base various commercial steels and other alloys have been made for the purpose of testing them without the complicating effect of impurities which are usually present in commercial iron and steel. These facts are set forth in Scientific Paper No. 464 of the Bureau of Standards, which is the third of a series, and deals with the effect of manganese on the structure and properties of the steel. The use of manganese as a strengthening agent in addition to the carbon is the subject with which the investigation was chiefly concerned. The use of higher percentages of manganese for producing high tensile properties in low and medium carbon steels has been recommended at times by various metallurgists, and to some extent such recommendations have been carried out in commercial practice. The results obtained in this investigation of the structural effects of manganese in steel strongly confirm such recommendations concerning this use of the element.—**Blast Furnace and Steel Plant.**

Want Iron With Known Gas Amounts—"Many requests are now being received by the United States Bureau for standard samples of iron having certified gas or oxygen content," says **The Foundry.** "These requests have come from technical schools and university laboratories and experiment stations, from metallurgical plants, and from commercial research institutions. Practically every request states that the material is required for checking and standardization of analytical methods employed in investigating the effects of gas content upon the quality of some iron or steel product. Such requests are usually accompanied by questions for advice as to suitable methods of chemical analysis. The bureau is now developing suitable methods for the determination of oxygen and hydrogen in metals."

Need of Adjustment in the Iron Industry—Kirby Thomas, a consulting engineer of New York, writing in the **Manufacturer's Record,** says, in part: "The development of the world's iron industry has been largely a matter of geography. The inauguration and successful operation of the great units of the industry have plainly been determined by the fact of the accidential association in favorable relations of suitable supplies of raw material, in combination with conditions permitting of the cheap distribution of the bulky products to good markets. It must be recognized that now some of the factors which have influenced the growth and distribution of the American iron industry are changing. New supplies of raw materials are becoming available as a result of exploration and development, and with the extention of the country's transportation facilities. Some of the old sources of supply are depleted or are yielding lower grade and more expensive raw products for the industry. The American iron industry as a whole

has followed the same general paths of developments for upwards of a century. The result has been a conflict of the established order with changing economic conditions. Vast deposits of suitable material exist in the west, where there is a growing market and an opportunity for export to the Orient, but there are no adequate plants to take advantage of this natural condition. The Atlantic seaboard plants, which have by far the largest and best local markets, and which are advantageously situated for the promising export trade, generally have poor or remote iron ore supplies. It is not necessary to point out other instances to demonstrate the need of adjustment within the industry."

Steel Plates Used in Grand Stand—Among the applications for steel for structural purposes the building of grandstands may be included. A compact, pleasing and fireproof structure of this class is the grandstand of the University of Iowa. The seats are built up of long plates bent along their edges and forming a large Z-shaped cross section. The central or horizontally placed part of the Z is about 2 feet wide, and forms the tread of the seat plate, the shorter ends forming the riser. The plates are riveted together at about the center of the riser, the upper section overlapping the lower and providing a structure that is practically weather proof. Plank seats are bolted to brackets which are attached to the seat plates by stud bolts. The structure was designed by Prof. Byron J. Lambert, of the University of Iowa.—**Iron Age.**

Distribution of Steel in New England.—"Distribution of iron and steel has always been an interesting topic, probably because little has been done to determine the destination of the various products of rolling mills," says the **Iron Trade Review.** "Once an important producer of iron and steel, compared with the other districts in the United States, New England is now almost entirely a consuming district. The value of iron and steel used in its various industries is approximately 6.8% of the total of the United States. Bars and wire products predominate, as might be expected from the fact that so much of the capacity of New England's industry is devoted to making textile machinery, hardware and machine tools and accessories. Other products consumed to the extent of more than 100,000 gross tons annually are rails, strip steel, sheets and structural steel."

Preparation of Sponge Iron—"The study of the preparation of sponge iron is being continued at the northwest experiment station of the Bureau of Mines, Seattle, Wash.," says the **Iron Age.** "The object of the study is to develop a method by which sponge iron can be made by using low-grade coals and iron ore in a direct-fired rotary kiln. The sponge iron will be prepared with a view to utilizing it in the production of foundry iron and steel, and for the precipitation of copper from solutions resulting from leaching operations. Tests will be made in a semi-commercial size furnace that will treat about half a ton of ore a day. Attempts will be made to increase the rate of reduction of the iron oxide by adjusting the operating conditions of the furnace and the conditions of the charge. Concentration studies will be made on a product with a view to obtaining a high grade sponge iron suitable for melting in an electric furnace, or for use in precipitating copper from solution."

Trade Customs Attract Favorable Notice—The code of uniform trade customs adopted some time ago by the Ohio State Foundrymen's Association is proving of value to its members, and is attracting attention from other organizations. The code has for its object standarization practice in the sale of castings. Many members have printed these trade customs, as shown on the back of their quotation blanks, letterheads and other stationary which goes to its customers. Recently an officer of the New England Foundrymen's Association requested the consent of the Ohio society to adopt the code in its entirety. The latter organization has the material shown printed in attractive form, and supplies copies to its members.—**The Foundry.**

Tired Steel—"Although the steel and iron industry is one of the greatest in the world, and offers such rewards that some of the cleverest chemists and other scientists study nothing else, there

are lots of apparent simple puzzles about it that no one has been able to solve yet," says the **Guardian Trade Review** (England). "The man who discovers the right answer to one or more of them may make a million pounds sterling out of it. Everyone who handles steel knows that it gets "tired" at times. After a piece of steel has been subjected to a severe strain for a certain period, it may suddenly show a decided weakness. Then experts say that it is tired, and so it is, for if it is allowed to rest a while it regains its strength. Recently it has been found that a steel bar can be made stronger by increasing the load on it gradually—in other words by exercising it just as a man exercises his muscles when he wishes to make them stronger. Very often new steel will not pass tests that it should pass, but after a few weeks it is found that it has grown better, and passes the tests beautifully. Then, again, steel that was perfect when it was tested often gets 'sick.' It cracks or becomes brittle, although other steel made at the same time in the same way remains perfectly sound. No man knows today why these things happen, but lots of people are trying to find out."

TRANSPORTATION

Freight Traffic Must Be Handled—"This is a time of the year when most railways are beset with the temptation to reduce tonnage, and with the large increase that has occurred in traffic during recent months, the pressure toward speeding train movement by a reduction in train tonnage is very great," says the **Railway Review.** "Most operating officials have long been familiar with the results of tests by the Railroad Administration which revealed the increased transportation cost resulting from any decrease in tonnage below the hauling capacity of the locomotive at low speeds, but on the other hand it is well known, despite the conclusions derived from these tests, that a moderate reduction in tonnage will often permit a considerable increase in train speeds between terminals; and it is an undisputed fact that higher average train speeds contribute to an increase in the freight tonnage that can be moved over a certain line by given equipment within a stated interval. The railways cannot have their cake and eat it, too. Increased tonnage on many roads under present conditions will mean increased unit costs. All freight traffic offered must be handled irrespective of cost."

Engineers and the Traffic Problem—"From cities both large and small evidence indicating the seriousness of the traffic problem keeps accumulating, and from the automotive industry and the motor-vehicle registration bureaus of the states figures are received showing an ever-increasing production and a corresponding high registration," says the **Engineering News-Record.** "Existing conditions have forced upon the public an appreciation of the need of improved method of traffic control if streets are to be made passable for the movement of vehicles and the crossing of pedestrians. Traffic control began as a police function, and has developed very largely under police administration. Engineers until recently, have had an insignificant part in its development, and yet it is essentially a problem on which engineering thought is needed, particularly at the present time, when all sorts of schemes involving the cutting of new streets through built-up sections of cities, elevated vehicle roadways, street widening projects, arcaded sidewalks, pedestrian tunnels or bridges across crowded thoroughfares, are being suggested as solutions. Many of these projects, of course, are impracticable, while others may become realities in the near future. Certain it is that the engineer should have a deciding voice in the adoption or rejection of plans for the solution of the city traffic problem."

Automobile Output Industrial Marvel.—So amazing an exhibition of vigor as the automobile industry is displaying at this season has had few parallels in modern industrial history. Production of pleasure cars in the Detroit district at present is running from 10,000 to 11,000 daily, and further increases are scheduld. The district is credited with about 85% of the motor car plant capacity of the country. This means that automobile output of cars today is at the rate of considerably more than 3,000,000 cars. The highest record of production for a full year to the credit of the industry was approximately 2,570,000 cars in

1922. Whatever the scope of the market may develop, it is a matter of real doubt whether the supply of steel of the special form and character required by the automobile industry will be available to permit the fullest production. The relationship of the prosperity of the automobile industry to that of the steel industry is a close one.—**Iron Trade Review.**

Motor Industry Makes Record Shipments—Shipping of assembled automobiles from main factories and assembling plants during the past year reached the record figure of approximately 400,000 carloads, transporting 1,700,000 machines," reports William E. Metzger, chairman of the traffic committee of the National Automobile Chamber of Commerce, to the directors' meeting of that association recently. In addition, more than 750,000 machines were driven away by dealers from factories and assembling plants. Manufactured parts, the report states, amounted to about 100,000 carloads, and it is not unlikely that this heavy shipping will place automobiles and parts third in the number of carloads of manufactured articles shipped on the railroads. In 1921 it ranked fourth, being exceeded only by refined petroleum, iron and steel products and cement.—**Engineering News-Record.**

FOREIGN

Continental Pig Iron—Paul M. Tyler, writing in the **Iron Age** on conditions in Europe, says in part: "While there are several different iron and steel producing areas on the Continent of Europe, the only regions that have attained any considerable prominence in foreign trades are those tributary to the Lorraine ore fields, which, except for a comparatively small portion that extends over into Luxemburg and Belgium, are now included within the boundries of France. Since the Treaty of Versailles, France has owned almost 50% of the iron ore resources of continental Europe. Throughout this region, which includes northern France, Luxemburg, Belgium and many of the most important producing areas of Germany, the situation has been much disturbed since the war. Nevertheless, despite the constant struggle to obtain adequate fuel supplies and the sundry difficulties attending the transition in part of the territory from German to French political domination, the Lorraine area has been able to furnish a very considerable output of ore and of pig iron. In all these countries conditions are still too chaotic to make any definite predictions as to what costs may now be considered normal. Neither France nor Germany can hope to arrive at any sort of stability until some satisfactory arrangement is made for the exchange of French ore for Westphalian coal or coke. So far, however, the only progress toward such an arrangement seems to be that its necessity has become more and more apparent and more widely recognized. A factor is the effect of scrap upon the costs of producing pig iron, as well as steel products. Scrap prices are stiffening in Europe, and France and England have both deemed it wise to obstruct the export of scrap to Germany, which country has taken even greater advantage of this method of increasing furnace capacities than has either France or Belgium."

Germans Blow Out Many Stacks.—German iron and steel producers are beginning to feel the pinch of the Ruhr invasion seriously, according to the Berlin correspondent of the **Iron Trade Review,** who says: "Traffic in the Ruhr district is 5% of normal. Iron ore stocks are sufficient for a few months, and more supplies of limestone have been obtained. There are no exports at present. The embargo imposed by the French on iron and steel products to the unoccupied portion of Germany has been effective only since February 15th. Furnaces in the Upper Silesian district are being blown in. Nineteen stacks have been blown out, 14 of these being at the Krupp plants, two at the Stahlwerk Becker, and three at the Concodia Hutte. The lasts items shipped prior to the em bargo included 20,000 tons of rails for Argentina and 6,000 tons for Japan."

Japanese Imports Increase.—Imports of iron and steel into Japan during the first ten months of 1922 were 1,305,633 tons. During the corresponding period of 1921 only 718,441 tons were purchased from foreign countries. This 82% increase was effected although stocks on hand in Japan were very large. Two factors that contributed to the increase, says Luther Becker, chief of the Iron and Steel Division of the Department

of Commerce, were the placing in the Japanese market of large quantities of Indian pig iron at prices that domestic blast furnaces could not undercut, and tht quickening of competition from German iron and steel producers. Pig iron, plates and sheets, bars, rods, angles and rails are the leading articles of importation. The United States, Germany, Great Britain, China, British India, Kwangtung Province (South Manchuria) and Belgium were the most important sources of these imports.—**Blast Furnace and Steel Plant.**

Effect of Ruhr Occupation on American Exports—"Opinions in this country are divided as to what the French occupation of the Ruhr valley portends," says the **American Machinist.** "So far as the world trade is concerned, it seems inevitable that the reduced credit of France and Germany will mean a leaner market for the American small grain farmer. As a result his purchasing power will suffer and he will not buy as much from American manufacturers as he would otherwise have done. On the other hand, the Ruhr occupation will mean two things to German industries, particularly those in the metal-working field. In the first place, lack of fuel and added difficulty in obtaining raw materials, not to speak of reduced output from nervous and unsettled workmen, will mean a big slowing down of production. In the second place, the uncertainty as to what will happen in Central Europe as a result of the occupation will make the foreigner hesitate to place orders with German manufacturers. American, British and Belgian machinery builders will thus enjoy a respite from German competition that will not be unwelcome. It would be well for American machinery men to keep this fact in mind in planning for foreign business."

A Canadian View of Imports—"Canada imports 200 million dollars worth a year of iron and steel products," says **Iron and Steel of Canada.** "Owing to natural conditions and certain economic conditions at present obtaining, it is impossible to avoid the larger part of this annual purchase abroad, but a very considerable part of it can, and will, be avoided when we Canadians set to work in earnest to make within our borders all the iron and steel products it is economically feasible to produce. We are still far from the maximum of self-sufficiency in iron and steel production and fabrication that is possible for us to attain. We must use every sound means possible to approach this maximum."

MISCELLANEOUS

Guard Against Accidents—We are starting upon an era of production in industry that may equal if not surpass the war period of production. This will contribute toward accident frequency because there will be more workers and there will be a tendency to speed up. But high speed production must not be secured at the sacrifice of safety. On an average 80% of the accidents in industry are caused by carelessness, and half of them are preventable. This carelessness is sometimes due to negligence of the employee and sometimes it is due to the negligence of the employer. He neglects safeguards sometimes, fails to provide safety devices, or fails in the cardinal principle of safety. "Don't get hurt" was the slogan in Pittsburgh during safety week there. Everyone was a part of this demonstration, which will be remembered throughout the year, and perhaps every succeeding year to come. — **Bulletin, Pennsylvania Department of Labor and Industry.**

Economical Possibilities of the Electric Steam Boiler—From a study of the economics of the electric steam generator it is evident that many users of hydro-electric power, as well as the companies who are interested in the development of this source of power, have not realized the possibilities of this class of equipment. However, the economic uses of electric steam boilers are now gradually being appreciated, and undoubtedly the next few years will see extensive installations. Although during the last ten years in Europe there have been over three hundred installations made in parts of the country where water power is available and coal is scarce, only in the last year or two have they been given any serious consideration in this country. There are installed or under construction in this

country and Canada at the present time approximately 250,000 kilowatts of electric steam boilers. In considering electric steam boiler it should not be overlooked that its greatest possibilities are as a consumer of excess hydro-electric energy for which there is no market as power. Where the power development in a hydro-electric system can be sold on a kilowatt-hour basis for industrial and domestic purposes, the electric steam generator has little chance of competing with the coal-fired boiler as a generator of steam on an economic basis. However, after all these localities are eliminated there still remains large possibilities for electric steam generators.—**Power.**

Copper Revival—The revival in the copper industry has shown lately a gaining momentum month by month. Last year not only were domestic production and consumption the highest since the war, but foreign demand was also heavy. So far in 1923 demand points to expansion in both domestic and foreign buying. In the last two weeks sharp price advances have resulted, and 16.00c copper has been realized. This was the price late in 1920, when the depression hit copper. The rate of increase in the foreign demand since 1919, the low point for many years, has been progressive. Germany was the leading buyer last year, though taking less than in 1921, but France and Italy greatly increased their purchases. Evidently copper is being returned to many of the uses from which war substitutes dislodged it.—**Iron Age.**

Safety Precautions in the Power Plant—One of the most important problems in the operation of a power station is the protection of men and equipment, and the most difficult part of this problem is protecting the workmen. Devices can be installed to protect the equipment, and if given a reasonable amount of intelligent attention, they can be relied upon to function properly and fulfill the purpose for which they were installed. In a large percentage of the cases where protective devices have failed, the fault has been with the human element making them inoperative. It is difficult to prevent a person from doing some of the inexplicable things that at times have been done, and that have resulted in fatal accidents. The fact is, they cannot be entirely prevented, but the introduction of proper safety methods and care in selecting plant attendants will reduce such occurrences to a minimum. The characteristics of the attendants should be carefully studied, and if any are found to be careless they should be dismissed—for their own safety as well as that of others.—**Power.**

Dominant Position of Anaconda Copper—As the largest user of copper in the world, the electrical industry has more than a passing interest in the purchase of the Chile Copper Company by the Anaconda Copper Mining Company. The combination will make the Anaconda Company, which for almost 40 years has been the country's greatest producer of red metal, the dominant figure in the copper markets of the world. With 16% of the world's copper output to its credit, the company is in a position to make or break the copper market. If it shall become conscious of its strength as well as deeply sensible of its obligation, it can exercise the same sobering influence over the price of red metal that the United States Steel Corporation exercises over the price of iron and steel. The copper industry has long needed some such stabilizer among the half dozen or more great groups of copper producers. That the Anaconda combination will have any effect in sending the price of copper downward is greatly to be doubted. Ever since the war the economic position of copper has been greatly unsettled. Over-production was followed by shutdown and then by distribution of virgin metal and scrap from stock. Prices have been chaotic. If the enlarged Anaconda Company shall prove to be nothing more than a stabilizer, it will justify itself.—**Electrical World.**

A Wise Man's Words—E. H. Sniffin, manager of the power department of the Westinghouse Electric and Manufacturing Company at East Pittsburgh, addressed the Springfield (Mass.) branch of the American Institute of Electrical Engineers on "The Engineer," in the course of which he said: "We are wasting more than half the 300,000,000 tons of coal we use in a year for power purposes. Many plants consuming between

(Continued on page 142)

COMPARISON OF METAL PRICES

	Range for 1921.		Range for 1922.		Range for 1923.		Closing Feb. 28,
Pig Iron.	High.	Low.	High.	Low.	High.	Low.	1923.
Bessemer, valley	32.00	20.00	33.50	19.00	28.50	27.50	28.50
Basic, valley	30.00	18.00	30.50	17.75	27.00	25.00	27.00
No. 2 foundry, valley	33.00	19.50	35.50	18.75	28.00	27.00	28.00
No. 2X fdy. Philadelphia	33.79	19.84	34.76	21.34	30.36	28.76	30.36
No. 2 foundry, Cleveland	33.56	20.56	35.50	19.56	30.00	27.50	30.00
No. 2X foundry, Buffalo	31.25	19.00	34.25	19.50	28.75	26.75	28.75
No. 2 foundry, Chicago	33.00	18.00	33.00	18.50	30.61	29.11	30.61
No. 2 Southern, Birm.	34.00	16.50	28.00	15.00	25.00	23.00	25.00
Scrap Iron and Steel.							
Melting Steel, Pittsburgh	17.00	12.75	22.00	14.00	24.50	20.50	24.25
Heavy steel scrap, Phila.	16.00	10.00	19.00	11.00	22.00	18.00	22.00
Heavy melting steel, Chi.	16.50	10.00	19.00	11.00	22.50	18.50	22.50
No. 1 cast, Pittsburgh	22.50	15.00	25.00	16.00	25.50	22.50	25.25
Iron and Steel Products.							
Bessemer rails, mill	45.00	40.00	43.00	40.00	43.00	43.00	43.00
Iron bars, Pittsburgh	3.06	1.85	2.55	1.80	2.58	2.35	2.58
Iron bars, Philadelphia	3.85	1.80	2.58	1.70	2.58	2.32	2.58
Steel bars, Pittsburgh	2.35	1.50	2.25	1.35	2.25	2.00	2.25
Tank plate, Pittsburgh	2.65	1.50	2.50	1.35	2.25	2.00	2.25
Structural shapes, Pitts.	2.45	1.50	2.25	1.35	2.25	2.00	2.25
Grooved steel skelp, Pitts.	2.45	1.50	2.10	1.40	2.25	2.00	2.25
Black sheets, Pittsburgh	4.35	2.75	3.75	3.00	3.60	3.35	3.60
Galvanized sheets, Pittsb.	5.70	3.75	4.75	4.00	4.75	4.35	4.75
Tin plate, Pittsburgh	7.00	4.75	4.75	4.60	5.00	4.75	5.00
Wire nails, Pittsburgh	3.25	2.50	2.70	2.40	2.80	2.70	2.80
Steel pipe, Pittsburgh	57½%	71%	66%	71%	64%	66%	64%
Connellsville Coke at Ovens.							
Propt furnace	5.00	2.75	15.00	3.75	9.00	6.75	7.25
Prompt foundry	7.00	3.75	16.00	3.75	9.50	8.00	8.50
Metals — New York.							
Straits tin	65.00	32.50	39.00	25.50	46.62½	28.75	46.62½
Lake Copper	20.50	13.75	14.00	12.00	17.00	12.75	17.00
Electrolytic copper	19.50	12.75	13.75	11.50	16.75	12.50	16.68¾
Casting copper	19.25	12.75	13.00	11.25	16.37½	12.25	16.37½
Sheet copper	29.50	22.50	21.50	19.50	24.50	19.25	24.50
Lead (A. S. & R. Co. price)	9.25	4.75	5.00	4.00	8.10	4.70	8.10
Zinc (spelter)	9.85	6.00	6.10	4.25	8.05	4.82½	8.02½
Chinese and Japanese Ant.	11.62½	5.20	6.00	4.45	7.75	4.15	7.75
Aluminum, 98-99%	32.75	22.00	26.00	17.00	24.50	16.50	24.25
Silver	137	59¼	73⅝	52⅝	73¾	62⅜	66⅜
St. Louis.							
Lead *	9.15	4.45	5.05	3.90	8.30	4.35	8.27½
Zinc (spelter)	9.50	5.50	5.60	4.12½	7.70	4.47½	7.67½
Sheet zinc (f.o.b. smelter)	12.50	11.50	11.50	8.50	9.75	7.50	9.55
London.	£	£	£	£	£	£	£
Standard tin prompts	415½	198	210½	148	209¼	139	209¼
Standard copper, prompts	122	70½	75½	65¼	72⅜	57⅛	72⅜
Lead	52⅜	21½	26	16½	29⅜	19½	29¼
Zinc (spelter)	63	22½	28¼	23½	39⅛	23⅞	37⅛

* Outside market.

COMPARISON OF SECURITY PRICES

Iron and Industrial Stocks.	Range. 1920. High.	Low.	Range. 1921. High.	Low.	Range. 1922. High.	Low.	Range. 1923. High.	Low.	Closing Feb. 28, 1923.
Allis-Chalmers	53⅞	26½	39¾	28¼	59¾	37¾	51¼	45	49½
American Can	61¾	21¾	35½	23½	76½	32⅛	104½	73½	102¼
American Car & Fdy...	147⅜	111	151	115¼	201	141	188	178	185
American Loco	109¼	74	110¼	73½	138½	102	129⅞	120⅛	126¼
American Smelt. & Rfg.	72	29¼	47¼	29⅝	67½	43⅝	69½	53	65¼
Am. Steel Found., new.	50	26	35	18	46⅛	30¾	39¾	35½	38
Am. Zinc & Lead Co. ..	21¾	5¾	14⅜	6¾	....	....	....	....	....
Anaconda Copper	66½	30	50¾	31¾	57	45	53	45⅛	51¼
Baldwin Loco	148½	78	100⅜	62¼	142¾	92¾	142	129¼	138⅛
Bethlehem Steel B	102½	48⅞	65	41½	82¼	55½	70⅞	60¼	66¾
Butte & Superior	29¼	8	22⅛	10	35¼	20⅜	37⅜	29½	36½
Cerro de Pasco	61⅜	24¼	36½	23	46⅜	32⅞	49¾	42½	48⅞
Chile Copper	21¼	7¾	16⅞	9	29¼	15⅛	30⅝	27¾	29⅞
Chino Copper	41⅝	16⅜	29½	19½	33⅜	22¼	31¾	24⅜	30¼
Colo. Fuel & Iron	44¼	22	32¾	22	37⅜	24	31¾	25¼	29¾
Crucible Steel	278½	70	107½	49	98⅜	52¾	82¾	67½	79¾
General Electric	172	116½	143¾	109½	190	136	190	179	186
General Motors	42	10¾	16¼	9⅜	15¼	8⅛	15½	13¼	15
Granby Con.	55½	15	34½	15	35	22	30¾	23	30
Great Northern Ore ...	41⅝	24⅞	35⅜	25⅝	45⅝	28⅞	35½	30	34
Gulf States Steel	84⅞	25	50⅞	25	94⅞	44⅞	96½	78	91⅜
Inspiration Copper	61⅞	28	42¼	29⅝	45	31	43¾	33	43⅜
International Harvester	142½	88	100½	67⅝	115⅞	79⅜	98½	87¾	94
International Nickel...	26¾	11⅛	17	11½	19¾	11¼	16¼	14	15½
Kennecott Copper	33½	14⅝	27⅞	16	39⅝	25½	45	35	44½
Midvale Steel	52¾	29½	33½	22	45½	26	31¼	27	29½
National Enam. & Stg..	89½	43¾	66	26	68½	30¾	70¾	65	69
National Lead	93¼	63½	87	67¾	129¼	85	133¼	123½	130
N. Y. Air Brake (new)	....	....	....	....	41⅝	24½	39½	26⅝	35½
Pressed Steel Car	113⅞	72½	96	48	95¼	63	81½	58	64
Railway Steel Spring ..	106½	73	99½	67	126¼	94	119½	110	115
Ray Consolidated	22¾	10	15⅞	11	19	12⅛	17¼	13⅜	16¾
Republic Iron & Steel.	124¾	55¼	73½	41	78½	43½	61¼	47	60⅛
Sloss-Sheffield	82¼	43	56	32⅛	54½	34½	54¼	42	50
U. S. Cast Iron Pipe ...	25½	10½	19	11½	39	16⅛	34½	28½	32⅜
U. S. Smelt., Rfg. & M.	76	29½	39⅜	26	45¾	32¾	43⅜	34⅞	41⅛
U. S. Steel Corporation	109	76¼	86½	70	111½	82	108⅞	104	107⅜
U. S. Steel Corp. pfd...	115¾	104⅛	115	105	123	114¼	123½	119	120¾
Utah Copper	80¾	44⅛	63⅜	41⅛	71½	59	76	62½	75⅜
Westinghouse Electric.	55⅛	40	52¼	38⅞	65⅞	49⅛	67⅛	58¾	64½

BUSINESS TRENDS

BANK CLEARINGS.

February not only saw lessened totals of bank clearings rolled up, but also rather heavily reduced percentages of gain over the like month a year ago recorded as compared with January. Bad weather and reduced car movement, as compared with January, were probably instrumental in this, but it must be recalled that comparisons with a year ago were with expanding totals, relatively speaking. Whatever the reason, the reduction from January was over $3,000,000,000 greater this year than last.

The total clearings at 118 cities of the United States in February were $30,001,000,000, a reduction of $6,328,000,000, or 17.4%, from January, whereas in February a year ago the reduction from January was $3,425,000,000, or 11.6%. Compared with February a year ago, however, clearings showed a gain of 15.4%, and the increase over February, 1921, was 18%. From February, 1920, a decrease of 6% was recorded.

Following are the aggregates of clearings monthly at 118 cities, compared with the like periods in four preceding years:

(Six figures omitted.)

	1923	1922	1921	1920
Jan.	$36,329	$29,429	$32,223	$40,169
Feb.	30,001	25,784	25,443	32,001
Mar.	.....	31,422	29,672	39,703
Apr.	.....	30,969	27,688	38,012
May	.....	32,314	27,367	35,527
June	.....	33,524	28,916	36,800
July	.....	31,204	26,834	35,819
Aug.	.....	29,849	26,096	32,799
Sept.	.....	30,683	27,059	34,385
Oct.	.....	35,008	28,974	37,099
Nov.	.....	31,502	29,200	34,407
Dec.	.....	33,837	31,402	36,029
Tot.	.....	$375,525	$340,874	$432,750

FAILURES DECREASING RAPIDLY.

The February report on business failures as reported by Bradstreet's shows that failures continue to decrease rapidly. The total number of failures reported to Bradstreet's for the month of February was 1,570, with liabilities amounting to $36,461,767 and assets of $18,779,647. This total of failures shows a decrease in failures below January of 27.4%, and a decrease of 24.2% from the total of February 1922. Likewise as regards the liabilities, the amount for February shows a decrease of 31.1% below the amount for January, and a decrease of 45% from the total for February 1922.

Although comparing January and February of this year, a fact to be considered is that February was considerably the shorter month. However, it might be noted that failures have run at the rate of 125 a week fewer than they did a year ago from January 1st to March 1st, and the total for February is the smallest recorded in any month since September 1922, and with that single exception, is the smallest of record since July 1921.

For two months of the year 1923 the failures numbered 3,735 and the liabilities were $89,895,770, decreases of respectively 22% and 48% from the same period of 1922.

The following table allows of comparisons of failures, assets and liabilities in February back to 1905, as reported by Bradstreet's:

	Number	Assets	Liabilities
1923	1,570	$18,779,647	$36,461,767
1922	2,072	41,559,827	66,922,618
1921	1,435	47,987,229	79,124,673
1920	434	5,550,577	12,265,041
1919	489	4,920,172	15,825,130
1918	918	6,232,570	11,468,534
1917	1,126	5,390,711	12,186,528
1016	1,608	9,386,188	18,068,223
1915	1,865	13,663,744	24,943,644
1914	1,206	10,820,258	20,159,736
1913	1,114	16,159,858	29,802,170
1912	1,208	8,491,853	14,964,948
1911	1,012	5,872,935	11,299,867
1910	1,009	7,495,077	16,475,238
1909	900	6,079,310	13,500,255
1908	1,290	13,989,175	27,827,021
1907	771	5,619,869	10,155,860
1906	764	4,230,605	9,453,893
1905	849	5,046,491	8,945,310

COMMODITY PRICES.

Bradstreet's Index Number as of March 1st shows an increase of 1.5% over February 1st. The latest number, $13.9332, marks an advance of 20% over March 1st a year ago, of 17% over March 1, 1921, and of 31% over the low point of June 1, 1921, but a reduction of 33.2% from February 1, 1920, the peak point of all time. Compared with August 1, 1914, the advance is just 60%.

A monthly range of index numbers of the past four years is given below:

	1923.	1922.	1921.	1920.
Jan.	13.7011	11.3725	12.6631	20.3638
Feb.	13.7236	11.4190	12.3689	*20.8690
Mar.	13.9332	11.6001	11.8650	20.7950
April	.....	11.5317	11.3749	20.7124
May	.....	11.7044	10.8208	20.7341
June	.....	11.9039	10.6169	19.8752
July	.....	12.1069	10.7284	19.3528
Aug.	.....	12.0688	11.0576	18.8273
Sept.	.....	12.0793	11.0868	17.9746
Oct.	.....	12.5039	11.1879	16.9094
Nov.	.....	13.3482	11.3514	15.6750
Dec.	.....	13.7835	11.3127	13.6263

* High record.

BUSINESS TRENDS

NEW INCORPORATIONS.

During February 702 new companies were organized under the laws of the different states with an authorized capital of $100,000 or over, involving $700,708,300. As the total number of new incorporations for January was 918, with a combined capital of $909,693,800, the total for the first two months of the year is 1,620, with a combined capital of $1,610,402,100.

The following are the comparative figures as compiled by **The Journal of Commerce** of companies incorporated in the States with authorized capital of $100,000 or over.

	1923	1922
January	$909,693,800	$ 843,652,900
February ...	700,708,300	591,404,300
March	.....	731,866,000
April	.....	792,372,000
May	.....	938,195,000
June	.....	297,557,000
July	.....	634,259,200
August	.....	646,605,000
September ..	.....	650,044,000
October	.....	651,577,390
November ..	.....	808,719,600
December ...	.....	813,901,000
Total	.....	8,400,153,390

NEW CAPITAL ISSUES.

Corporate financing during February indicated a total of $237,608,900. This compares with the record total of $632,783,500 in January. However, the volume of new capital issues continues to run considerably in excess of a year ago. In the opinion of bankers, the decrease in the past month's total, as contrasted with the opening month of 1922, was not unnatural in view of the exceptionally heavy corporate borrowing operations during recent months.

Increases are shown in the various items, except in the case of railroad bonds, which figure for a much smaller total than in February a year ago. The outstanding feature of the compilation is the fact that industrial corporations contributed a very large part of the grand total.

The ease that prevailed in the money market throughout practically the entire month of February, as well as expanding trade in many lines of business or industry, explain the continued large volume of new financing.

Bankers estimate that approxixmately 30% of the foregoing figures were used to refund or pay off maturing obligations. Corporate maturities during the current month will amount to $29,465,160, against $52,099,130 in February and $83,379,375 in March a year ago.

RAILROAD CAR LOADINGS.

Loadings of revenue freight reached the highest point for 1923, during the week ending March 3rd, according to reports filed with the car service division of the American Railway Association. The total for the week was 917,896, an increase over the total for the previous week of 87,673 cars, and 124,781 cars more than were loaded in the corresponding week of 1922.

The following table gives a comparison of the cars loaded with freight since Aug. 5th, and a comparison with the two previous years:

	1923	1922	1921
Mar. 3 ..	917,896	793,115	711,367
Feb. 24 ..	830,223	728,925	659,642
Feb. 17 ..	817,778	780,924	692,007
Feb. 10 ..	853,289	777,801	687,867
Feb. 3 ...	865,675	747,895	699,718
Jan. 27 ..	871,164	740,386	701,605
Jan. 20 ..	865,578	731,109	708,658
Jan. 13 ..	873,251	714,191	715,855
Jan. 6 ...	770,303	599,433	697,641
	1922	1921	1920
Dec. 30 ..	711,200	518,556	602,368
Dec. 23 ..	834,591	666,605	648,406
Dec. 16 ..	888,032	726,074	802,271
Dec. 9 ...	919,828	741,341	837,953
Dec. 2 ...	845,219	741,849	882,604
Nov. 25 ..	955,495	673,465	803,701
Nov. 18 ..	969,094	790,363	889,188
Nov. 11 ..	958,909	754,777	927,586
Nov. 4 ...	994,827	837,576	915,615
Oct. 28 ...	1,014,480	951,384	981,242
Oct. 21 ...	1,003,759	964,811	1,008,818
Oct. 14 ...	983,470	910,529	1,118,539
Oct. 7	968,169	899,681	1,011,666
Sept. 30 ..	998,381	814,831	992,283
Sept. 23 ..	978,291	874,641	1,008,109
Sept. 16 ..	945,919	852,552	991,166
Sept. 9 ...	832,744	749,552	883,415
Sept. 2 ...	931,598	831,288	961,633
Aug. 26 ..	890,838	828,883	1,001,308
Aug. 19 ..	859,219	818,147	971,103
Aug. 12 ..	852,580	808,269	971,260
Aug. 5 ...	851,351	786,178	935,760

five and ten pounds of coal per kilowatt-hour should do the same amount of work upon two pounds. Forty millions of water horsepower are yearly going to waste in this country, or double what we are now using. The problem is to utilize the power in greater volume and thus affect a vast saving in coal and the expense of hauling it from the mines. Last year the purchases in this country of steam-turbine capacity in sizes of 500 kw. and larger amounted to 10,000 hp. a day. The average size of unit was 6,500 kw., and the largest was 50,000 kw. The new electric power facilities that must be created in this country in less than ten years will exceed in extent all the facilities that exist today, and which have been forty years in the making."—**Electrical World.**

Magnetic Recovery of Fuel From Ashes—That magnetism, which has long been used for ore separation in the metallurgical industries, is now being successfully employed to recover unburned fuel from ashes, is stated in a recent issue of **Engineering** (London.) The apparatus, devised by Messrs. Fried Krupp, in Germany, depends for its operation upon the fact that practically all coal contains iron in the form of pyrites. Although the pyrites have no magnetic properties, they are converted into magnetic oxides of iron when the coal is burned. As the whole of the iron passes away with the clinker, the metal exists there in a much more concentrated form than in the original coal. The actual separation is accomplished by passing the furnace refuse over a rotating magnetic drum, the ashes being delivered to the drum by a bucket elevator and a vibrating screen. Each size is passed separately to the surface of the drum. The clinkers, on account of the iron contained, are held magnetically to the surface for a portion of the revolution and then drop off into small wagons or other receptacles as the current exciting the portion of the drum that holds them is automatically broken. Particles of good coal and coke, containing no magnetic oxides, do not adhere to the drum, but leave it directly after contact, falling vertically into special hoppers. The magnetic action is sufficient to cause lumps of clinker up to 3-inch mesh to adhere to the drum, so that all lumps smaller than this are eliminated from the fuel.

Cost of Living and Electric Utilities—In the **Monthly Labor Review** issued by the United States Department of Labor, and in the cost of living data issued by the National Industrial Conference Board, a great wrong is done to the electric light and power companies of the country. This wrong is not done openly or possibly knowingly, but inferentially, and it is the inference which newspaper headline writers are quick to grasp and play up to our detriment. Why the cost of electric light should be combined with the cost of fuel in the curve "fuel and light," particularly since its effect is almost nil, is somewhat difficult to understand. The National Electric Light Association has very properly taken the matter up with the Labor Department at Washington, and it is to be hoped that the injustice will be quickly righted. Water is more essential to life than artificial light, yet no note is taken of water by the Labor Department, nor of telephone or street-railway service. These have a greater effect on the cost of living than has the cost of electric light.—**Electrical World.**

Birmingham is to Rival Pittsburgh—The Alabama Power Company has started the construction of a sub-station at Leeds, Ala., which will cost in the neighborhood of $1,500,000 to contemplate. This station will distribute the power from Lock 12 and Mitchell dam to the Birmingham district. When the power to be furnished through this station is available, together with the power furnished through the stations at Magella and Bessemer, 371,000 hp. will be provided for the industries of the Birmingham district, which will be the center of a power "loop" supplied from Jackson Shoals, Lock 12, Galdsden, Gorgas and Mitchell dam. The power at present available to Birmingham is put at 250,000 hp. Officials of the Alabama Power Company are responsible for the statement that when the station at Leeds shall have been completed Birmingham will exceed Pittsburgh in abundance and constancy of electric power.—**Electrical World.**

IRON AND STEEL MARKET

The outstanding feature of the finished steel markets in February was the desire of buyers to cover for additional tonnages. The prospective requirements of buyers may have increased, but the mills were of the opinion that in not a few cases the buyers were either overestimating their requirements or were desirous of speculating against further advances in prices. On much of the inquiry mills refused to quote, explaining that they were unable to promise the desired delivery, the prospective buyer then expressing a willingness to be covered for a later delivery instead.

While some new wants appeared, along the line of new construction work being undertaken, there was no great increase in actual requirements. The heavy inquiry was due chiefly to buyers becoming more anxious to cover themselves for the future.

During February the feeling became widespread in the trade that the market was growing too strong, that the demand was too great to last, and that therefore the basis for a final dissolution was being laid. At the end of the month practically no one was attempting to maintain that the market condition was such as could be sustained for any great length of time. In December and January there had been presented a strong market, but hardly an unduly strong market, hardly one that could not sustain itself for a considerable period of time. By the end of February it was clear that the danger line had been crossed and that the buying fever would only last until it had burned itself out.

COMPARISONS WITH 1920

There has been much tendency to compare existing conditions in steel with those of 1920. In some respects there has been a similarity, comparing conditions on the same date in the two years. In one important respect there is a difference—that of the tonnage of steel distributed.

COMPOSITE PIG IRON.

Computation for March 1, 1923.

One ton Bessemer, valley	$28.50
Two tons basic, valley (27.00)	54.00
One ton No. 2 fdy., valley	28.00
One ton No. 2X fdy., Philadelphia	30.36
One ton No. 2X fdy., Buffalo	28.25
One ton No. 2 fdy., Cleveland	30.00
One ton No. 2 fdy., Chicago	30.61
Two tons No. 2 Southern foundry, Cincinnati (29.05)	58.10
Total, ten tons	287.82
One ton	28.782

Averaged from daily quotations.

	1923.	1922.	1921.	1920.	1919.	1918.
Jan.	27.31	19.71	32.62	39.84	32.39	34.19
Feb.	27.98	19.31	29.95	42.72	32.39	34.19
Mar.	.....	19.26	27.35	43.05	30.47	34.14
Apr.	.....	20.77	25.80	43.62	28.05	33.88
May	.....	23.91	24.67	44.43	27.74	33.88
June	.....	24.29	23.08	44.80	27.15	33.91
July	.....	24.54	21.57	45.60	27.66	34.04
Aug.	.....	27.74	20.29	47.41	27.99	34.04
Sept.	.....	32.48	20.99	48.98	28.26	34.31
Oct.	.....	31.82	21.15	47.07	28.65	35.36
Nov.	.....	29.47	20.92	41.80	31.48	35.39
Dec.	.....	26.73	20.42	36.31	36.73	35.23
Year	.....	25.00	24.05	43.80	29.91	34.38

Annual Averages

1917	39.99	1914	13.52
1916	20.31	1913	15.42
1915	14.15	1912	14.82

COMPOSITE STEEL.

Computation for March 1, 1923.

Pounds	Group	Av. Price	Extension
2½	Bars	2.25	5.625
1½	Plates	2.25	3.375
1½	Shapes	2.25	3.375
1½	Pipe (1-3)	3.60	5.400
1½	Wire nails	2.80	4.200
1	Sheets (28 ga.)	3.60	3.600
½	Tin plate	5.00	2.500
Total, ten pounds			28.075
One pound			2.8075

Averaged from daily quotations.

	1923.	1922.	1921.	1920.	1919.	1918.
Jan.	2.59	2.16	3.25	3.35	3.58	3.80
Feb.	2.72	2.14	3.10	3.58	3.58	3.80
Mar.	....	2.09	2.94	3.78	3.47	3.80
Apr.	....	2.16	2.93	3.77	3.25	3.80
May	....	2.18	2.93	3.71	3.25	3.80
June	....	2.22	2.83	3.67	3.25	3.80
July	....	2.23	2.63	3.70	3.25	3.80
Aug.	....	2.36	2.48	3.80	3.25	3.80
Sept.	....	2.51	2.37	3.80	3.22	3.80
Oct.	....	2.57	2.31	3.67	3.23	3.80
Nov.	....	2.57	2.28	3.50	3.25	3.80
Dec.	....	2.57	2.23	3.28	3.25	3.67
Av.	....	2.31	2.69	3.63	3.32	3.79

Annual Averages

1917	4.46	1916	2.80	1915	1.63
1914	1.52	1913	1.72	1912	1.62

Merely considering the similarity between present and recent times and those of the same dates three years ago, really thoughtful consideration shows readily and plainly that much of the current comment has been misplaced. It has been said that men ought to profit by "the lesson of 1920," the meaning being that they should remember the sweeping reaction that began late in that year and extended through much of 1921, with the losses entailed. There has been criticism, that with so recent experience men ought to know better and not do as they are now doing.

The criticism is misplaced. What has been occurring shows that men are profiting, not that they are not profiting, by the experiencing of 1920. The mistake in this criticism arises from looking at the wrong part of 1920. This is not the time to look at the losses that occurred at the end of 1920, it is the time to look at the losses that occurred in the Spring and Summer of 1920. That is what came first.

If men are to profit by the experiences of 1920, the seller of steel should reflect upon the cheap steel he had to deliver in the Spring and Summer of 1920, when by waiting he could have secured higher prices, for at this time in 1920 the great advance had merely gotten under way. Correspondingly the buyers of steel who had to pay about ten dollars a keg for nails and nearly if not quite ten cents a pound for common sheets should reflect upon the money he then lost and endeavor to avoid having to do so again.

PIG IRON PRICES

(Averaged from daily quotations; at Philadelphia, Buffalo, Cleveland and Chicago, prices are delivered.)

	Bessemer, Valley	Basic, No. 2 fdy. Valley		Basic. Phila.	No. 2X Phila.	No.2Xfdy. Buffalo.	No. 2 fdy. Cleveland.	No. 2 fdy. Chicago.	No. 2 fdy. Birmingham.	Ferro-manganese.*	Comp. Pig Iron.
Feb. 1921	29.63	27.71	28.29	29.28	30.73	30.17	30.15	30.87	27.50	90.00	29.95
Mar. ...	26.70	24.41	25.89	26.54	28.03	29.01	27.70	27.07	25.52	90.00	27.35
April ..	25.00	23.00	24.81	25.47	26.38	27.17	26.77	25.32	23.77	90.00	25.80
May ...	24.32	22.15	23.60	23.70	24.96	25.40	25.56	23.70	21.80	85.00	24.47
June ...	22.88	21.20	22.42	23.54	24.21	22.45	24.17	22.08	20.48	75.00	23.08
July ...	21.34	19.52	20.40	22.40	23.00	20.68	21.66	19.98	20.18	70.00	21.57
Aug. ...	20.00	18.22	19.59	19.70	20.42	19.48	20.56	19.64	18.70	68.50	20.29
Sept. ..	20.00	19.00	20.86	19.14	20.84	20.08	20.56	22.18	19.06	66.00	20.99
Oct. ...	20.00	19.24	21.00	20.50	21.40	20.50	20.56	22.35	19.00	60.00	21.15
Nov. ...	20.00	19.00	20.78	20.50	21.93	19.82	20.56	21.79	18.56	60.00	20.92
Dec. ...	20.00	19.00	20.00	20.45	21.88	19.38	20.56	20.53	17.31	59.00	20.42
Jan. 1922	19.62	18.19	19.38	20.25	21.34	19.75	19.92	19.84	15.96	58.00	19.71
Feb.	19.40	18.00	18.92	19.84	21.34	19.06	19.56	19.18	15.33	65.75	19.31
Mar. ...	19.02	17.89	18.87	19.84	20.73	18.56	19.56	20.48	15.31	62.50†	19.26
April ..	20.88	19.98	20.74	20.75	22.90	20.89	20.76	21.06	15.74	68.00†	20.77
May ...	25.08	24.62	24.00	23.37	25.51	23.44	24.56	23.05	17.63	70.00†	23.91
June ..	25.00	25.00	24.00	25.00	26.62	22.96	24.56	23.83	18.44	68.50†	24.29
July ...	25.00	24.32	24.20	25.54	28.00	25.05	24.56	24.73	18.56	69.00†	24.54
Aug. ...	27.74	26.17	29.04	29.00	31.69	30.42	29.16	28.17	20.37	70.00†	27.74
Sept. ..	33.76	30.08	35.02	30.90	34.76	34.13	35.50	32.53	25.40	77.00†	32.48
Oct. ...	33.23	30.23	31.63	29.50	32.69	31.60	34.27	32.15	27.04	100.00†	31.82
Nov. ...	31.70	28.28	28.78	28.14	30.78	28.41	31.34	30.65	24.12	100.00‡	29.46
Dec. ...	27.78	24.96	25.92	27.50	28.53	26.19	27.38	28.09	22.70	100.00‡	26.73
Jan. 1923	27.50	25.00	27.00	27.90	28.72	27.44	27.83	29.09	23.23	103.00‡	27.31
Feb.	27.75	25.67	27.21	28.25	29.79	28.52	28.42	30.13	24.29	106.00‡	27.98
Yearly averages.											
1913 ...	16.26	14.77	14.87	13.23	16.56	14.87	15.37	16.39	11.73	57.87	15.42
1914 ...	13.99	12.89	13.02	14.02	14.59	12.84	13.76	14.15	10.25	55.80	13.52
1915 ...	14.90	13.78	13.81	14.88	15.25	13.98	14.31	14.46	10.59	92.21	14.15
1916 ...	23.05	19.87	20.16	20.96	21.20	20.63	20.40	20.67	15.84	164.12	20.31
1917 ...	42.67	39.10	39.89	39.37	40.80	40.41	40.61	41.06	35.11	309.17	39.99
1918 ...	35.46	32.50	33.27	34.10	35.56	33.97	33.62	33.77	33.20	245.83	34.38
1919 ...	29.62	27.49	28.63	30.02	32.75	30.53	29.14	29.37	28.34	132.16	29.91
1920 ...	42.85	42.05	43.25	43.26	46.74	45.23	43.66	43.25	40.43	172.33	43.80
1921 ...	23.49	21.87	23.30	23.56	24.74	23.78	24.34	24.05	21.92	76.54	24.05
1922 ...	25.68	23.98	25.04	24.88	27.07	25.04	25.93	25.31	19.72	75.33	25.00

* Delivered. † Seaboard. ‡ F. o. b. furnace.

Instead of criticising, it will be safer to give the benefit of the doubt and take it as a working hypothesis that men are now thinking of the tremendous price advances that occurred in the Spring and Summer of 1920 and that they will in due time begin to think of the losses they had in liquidation afterwards and endeavor to avoid such losses in future. When the time comes to stop buyers will probably stop suddenly.

Heavy Production.

Reference was made above to the fact that while the present condition presents some similarity to conditions of 1920, there is an important difference. That difference is in tonnage. At the beginning of 1920 mills had just reached the position of being able to recover from the steel strike of September 22, 1919, and the coal strike of November 1, 1919, the most complete coal strike that ever occurred. Production had been at well below the requirements. A shortage of steel had accumulated. The question before traders then was not how many years there would be boom conditions in steel, the question was how many months would be required to make up the shortage. To say six months seemed like making a long prediction. Production rose sharply until a rate of 45,000,000 tons a year in ingots was reached in March. April 1st began the "outlaw" rail strikes and April production was at about 37,000,000 tons a year. The March rate was not even closely approached thereafter. As a result of curtailment the shortage was not made up. Apparently it was not made up until much after July 1st, for price advances continued until the middle of August, independent steel producers did not begin to curtail production until the end of September and the Steel Corporation ran heavily through the following January. When production was less than half as much in 1921 as in 1920 the presumption is that stocks accumulated and that the actual shortage was made up some time before production decreased.

In March, 1920, production of ingots was at a 45,000,000 ton rate, while before and after the rate was much less. This year there has been heavy production for five months preceding March and so far as anyone can foresee there will be opportunity for heavy production after March. In other words there is a much larger supply of steel while it cannot be seen that there is room for heavier consumption.

If it is said that labor shortage will restrict the production of steel in Spring, as indeed is not unlikely, it should be seen that the possibility of an actual shortage of steel next Summer is removed. It requires no knowledge of steel to recognize that labor is required in consuming steel as well as in making it. A buyer may pile up steel hoping he will secure labor to consume it, but if he does not get the labor he will not start a second pile.

Thus one must consider that there is a larger supply of steel in 1923 than there was in 1920, say 15% more, comparing actual production October 1, 1919, to October 1, 1920, with production since October 1, 1922, to date plus the prospective production through next September.

Pig Iron and Coke.

In December buyers of pig iron covered their first quarter requirements fairly well, prices having receded until they looked attractive. Eventually further declines were expected, in line with cheaper coke, which was counted upon to develop when the buying for domestic consumption should cease. In January and the fore part of February buyers of pig iron were waiting for cheaper pig iron and producers of pig iron were waiting for cheaper coke. In their waiting game the furnaces won with respect to the buyers of pig iron but not with respect to the coke market. In the latter part of the month a buying movement in second quarter Connellsville coke started, the price being $7.00, or considerably more than the furnaces had expected. The price pointed to dearer rather than cheaper pig iron and pig iron began to advance apace. The contracting movement was destined to involve a total of 275,000 to 300,000 tons a month in Connellsville furnace coke for the quarter, with the price stiffening to $7.25 in the latest transactions.

Lake Superior ore, which had previously been expected to remain at 1922 prices for the 1923 season, became lined up for a 50-cent advance, putting Mesabi non-Bessemer at $5.55, f.o.b. Lake Erie docks, restoring the 1921 schedule of

ore prices, which was $1.00 below that of 1920, the highest in the modern history of the Lake Superior ore region.

PIG IRON PRODUCTION

February output of coke and anthracite pig iron was almost 2,995,000 tons. As there were 28 days in February the daily rate was approximately 106,935 tons. The January production amounted to 3,229,604 tons which for a 31-day month was equivalent to 104,181 tons a day. The February output was at the highest daily rate since March 1920, and the total February production was the largest of any February in the history of the industry. The next largest February production was in 1916 when the daily rate averaged 106,456 tons.

On March 1st the 278 furnaces active had an estimated daily capacity of 110,055 tons. On February 1st 262 furnaces were blowing, having an average daily capacity of 105,125 tons. Thus pig iron was being produced at the rate of 40,170,000 tons a year, including coke and anthracite iron, and at the rate of 41,300,000 tons yearly, including charcoal iron, at the beginning of March. The February output was at the rate of a little over 39,000,000 tons a year as compared with a little over 38,000,000 tons a year in January and 36,350,000 tons a year in December.

Steel companies in February produced a little over 2,259,000 tons, or 80,684 tons a day, while merchant furnaces produced 735,033 tons, being at a daily rate of 26,250 tons. There was a greater gain therefore in output by merchant furnaces in February than by steel companies. The gain by merchant furnaces averaged over 2,060 tons a day more than in January while the steel companies produced only 693 tons a day more than in February as compared with January.

The output of domestic producers of ferromanganese in February was 21,383 tons against production in January of 19,358 tons.

The following table shows the estimated annual rates of production of coke and anthracite iron in each month during the last three years.

Estimated annual rates.

	1923	1922	1921
Jan.	38,000,000	19,300,000	28,750,000
Feb.	39,000,000	21,300,000	25,550,000
Mar.		24,000,000	19,000,000
April		25,250,000	14,600,000
May		27,250,000	14,450,000
June		28,900,000	13,000,000
July		28,500,000	10,200,000
Aug.		21,550,000	11,250,000
Sept.		24,950,000	13,000,000
Oct.		31,350,000	14,600,000
Nov.		34,900,000	17,200,000
Dec.		36,350,000	19,400,000

Yearly Totals

1921	16,650,000	1916	39,434,797
1920	36,925,987	1915	29,916,213
1919	31,015,364	1914	23,332,244
1918	39,054,644	1913	30,966,152
1917	38,621,216	1912	29,726,937

UNFINISHED STEEL AND IRON BARS.

Averaged from daily quotations.

1921—	Billets. Pitts.	Sheet Bars. Pitts.	Rods. Pitts.	—Iron bars, deliv.— Phila.	Pitts.	Ch'go.
Jan.	45.00	47.00	57.00	2.85	3.06	2.68
Feb.	42.00	42.00	57.00	2.70	2.70	2.62
Mar.	39.00	39.00	47.00	2.56	2.60	2.60
April	37.00	38.50	47.50	2.35	2.45	2.45
May	37.00	39.00	48.00	2.35	2.35	2.38
June	35.00	36.00	48.00	2.20	2.25	2.25
July	32.00	33.00	43.00	2.07	2.20	1.94
Aug.	30.25	30.50	42.00	2.00	2.08	1.75
Sept.	30.00	30.00	40.50	1.97	2.00	1.75
Oct.	30.00	30.00	40.00	1.92	2.00	1.75
Nov.	29.00	30.00	40.00	1.90	1.97	1.70
Dec.	29.00	29.00	38.00	1.85	1.95	1.70
1922—						
Jan.	29.00	29.00	37.00	1.80	1.82	1.60
Feb.	28.50	29.00	36.00	1.75	1.78	1.60
Mar.	28.00	29.00	36.00	1.70	1.70	1.54
April	30.00	31.75	38.00	1.81	1.75	1.57
May	34.00	35.00	38.00	1.86	1.83	1.65
June	35.00	35.00	38.00	1.96	1.95	1.73
July	35.00	35.00	40.00	2.12	2.13	1.85
Aug.	37.00	37.00	43.00	2.16	2.15	1.95
Sept.	39.00	40.00	45.00	2.48	2.25	2.25
Oct.	39.50	39.50	45.00	2.43	2.40	2.50
Nov.	37.75	37.75	45.00	2.37	2.40	2.50
Dec.	36.50	36.50	45.00	2.32	2.35	2.50
1923—						
Jan.	37.50	37.50	48.50	2.36	2.38	2.45
Feb.	39.40	39.40	50.00	2.51	2.54	2.35
Yearly averages.						
1913.	25.56	26.35	28.39	1.51	1.59	1.45
1914.	20.08	20.84	25.50	1.20	1.27	1.07
1915.	23.14	23.46	28.28	1.37	1.32	1.24
1916.	45.02	45.10	57.58	2.57	2.59	2.31
1917.	71.15	75.87	80.23	4.06	4.09	3.78
1918.	47.30	50.80	57.00	3.71	3.50	3.50
1919.	40.52	43.77	53.11	2.94	2.80	2.69
1920.	57.79	65.21	70.00	4.35	4.13	3.65
1921.	34.60	35.33	45.67	2.23	2.30	2.13
1922.	34.10	34.54	40.50	2.06	2.04	1.94

STEEL PRODUCTION.

Steel ingot production in February was about 1% larger than in January. The indication is that all of the steel companies in February, a month of 24 business days, produced slightly over 3,336,000 tons, which is at an average daily rate of 139,000 tons. In January, a month of 27 business days, production of all steel companies was about 3,716,221 tons, which is at a daily rate of 137,637 tons.

It is significant that all of the gain in February was due entirely to the operations of the subsidiary companies of the U. S. Steel Corporation which utilized an overage of almost 90% of ingot capacity in February against an average of 88% in January. Independent steel companies barely held their own, there being a decrease in the daily February output of the latter companies of about 97 tons a day.

Institute Report.

The industry as a whole in February utilized about 82% of capacity against 81% in January.

The estimates for the industry as a whole are based upon the report of the American Iron and Steel Institute showing that 30 steel companies, which produced 87½% of the total ingot production in 1921, in February this year produced 2,919,017 tons for the 24 active days of the month, indicating a daily output at the rate of 121,625 tons. In January the daily rate of these companies was 120,433 tons.

Steel Corporation.

The U. S. Steel Corporation, utilizing an average of slightly under 90% of ingot capacity, in February produced 1,576,800 tons of ingots which was at a daily rate of 65,700 tons. In January the Steel Corporation, utilizing about 88% of capacity, produced 1,734,480 tons, equivalent to a daily rate of 64,240 tons, that is, the Steel Corporation gained 1,460 tons of ingots a day in February or a total of 35,040 tons in the 24 active days of February.

Independent Companies.

Independent steel companies in February, including those that report to the Institute and those that do not, are indicated to have produced 1,759,220 tons which was at a daily rate of 73,300 tons. In January these same companies produced 1,982,000 tons, equivalent to a daily rate of 73,397 tons, there being thus a loss of 97 tons a day during the 24 active days in the month, equivalent

STEEL MAKING PIG IRON AVERAGES

Bessemer and basic pig iron averages compiled by Messrs. W. P. Snyder & Company from sales in the valley market of 1,000 tons and over.

	Bessemer.			Basic.		
	1923.	1922.	1921.	1923.	1922.	1921.
Jan.	27.50	19.50	32.00	25.58	18.19	30.00
Feb.	28.02	19.50	27.00	26.38	17.75	25.00
Mar.	.....	19.39	26.20	.....	18.00	24.50
April	.....	20.54	25.00	.....	19.30	22.50
May	.....	24.40	24.25	.....	24.91	21.87
June	.....	25.00	23.00	.....	25.00	20.70
July	.....	25.00	20.88	.....	24.56	18.80
Aug.	.....	28.67	20.00	.....	25.41	18.33
Sept.	.....	33.50	20.00	.....	32.93	19.25
Oct.	.....	33.50	20.00	.....	30.00	19.00
Nov.	.....	31.75	20.00	.....	27.60	19.00
Dec.	.....	28.10	20.00	.....	24.57	18.69
Year	.....	25.75	23.19	.....	24.02	21.47

All prices are f.o.b. valley furnace; freight, August 26, 1920, $1.96; August 1, 1922, $1.77.

STEEL CORPORATION BOOKINGS

Changes in unfilled tonnage with shipments and bookings estimated in percentage of capacity.

	Shipments.	Bookings.	Difference.	Difference.
1921.	%	%	%	Tons.
Nov.	52	49	— 3	— 362,287
Dec.	48	49	+ 1	+ 17,872
1922.				
Jan.	47	45	— 2	— 26,736
Feb.	57	49	— 8	— 100,609
Mar.	65	90	+25	+ 353,079
April ...	70	115	+45	+ 602,769
May	75	86	+11	+ 157,311
June	75	103	+28	+ 381,303
July	75	86	+11	+ 140,630
Aug.	67	79	+12	+ 173,944
Sept. ...	67	121	+54	+ 741,502
Oct.	76	91	+15	+ 210,680
Nov.	81	76	— 5	— 62,045
Dec.	80	73	— 7	— 94,539
1923.				
Jan.	86	97	+11	+ 165,073
Feb.	88	117	+29	+ 373,213

Unfilled Orders.

At end of the quarter, last three figures omitted.	First.	Second.	Third.	Fourth.
1908	3,765	3,313	3,421	3,603
1909	3,542	4,057	4,796	5,927
1910	5,402	4,257	3,158	2,674
1911	3,447	3,361	3,611	5,084
1912	5,304	5,807	6,551	7,932
1913	7,468	5,807	5,003	4,282
1914	4,653	4,032	3,787	3,836
1915	4,255	4,678	5,317	7,806
1916	9,331	9,640	9,522	11,547
1917	11,711	11,383	9,833	9,381
1918	9,056	8,918	8,297	7,379
1919	5,430	4,892	6,284	8,265
1920	9,892	10,978	10,374	8,148
1921	6,284	5,117	4,560	4,268
1922	4,494	5,635	6,691	6,746

to a total loss of 2,328 tons. This loss was more than covered by the gain made by the Steel Corporation, indicating a net gain for the industry as a whole of 32,712 tons. Independent companies utilized about 75½% of capacity in February and about 75.7% of capacity in January.

The annual rate of output of all steel companies in February was the largest since March 1920, and the prospect is that March production this year will exceed that of 1920, unless transportation conditions keep independent companies from gaining. The annual February output is indicated to have been 43,229,000 tons. The annual rate in January, according to revised figures, was a little over 42,800,000 tons. The yearly rate of the Steel Corporation in February was 20,433,000 tons and of independents, 22,796,000 tons.

The following table shows the monthly production reported by the 30 companies which make returns to the American Iron and Steel Institute, as compared with the corresponding months last year, also the estimated annual rate of production by all steel companies for each month during the years 1922 and 1921:

	Month's production as reported.		Estimate of total annual rate. (000 omitted)	
	1922.	1921.	1922.	1921.
Jan.	1,593,482	2,203,180	22,750	29,100
Feb.	1,745,022	1,749,477	26,850	25,400
Mar.	2,370,751	1,570,978	32,550	21,000
April	2,444,513	1,213,958	35,450	16,800
May	2,711,141	1,265,850	36,400	18,000
June	2,634,477	1,003,406	36,600	14,000
July	2,487,104	803,376	36,000	11,100
Aug.	2,214,582	1,138,071	30,000	15,800
Sept.	2,373,779	1,174,740	33,000	16,850
Oct.	2,872,415	1,616,810	40,000	23,000
Nov.	2,889,297	1,660,001	40,000	23,300
Dec.	2,779,890	1,427,093	39,500	19,750
	1923.		1923.	
Jan.	3,251,694		Jan.	42,800
Feb.	2,919,017		Feb.	43,250

FINISHED STEEL PRICES

(Averaged from daily quotations, f.o.b. Pittsburgh).

	Shapes.	Plates.	Bars.	Pipe.	Wire.	Grooved Wire Nails.	Grooved Steel Skelp.	Sheets — Black	Sheets — Galv.	Sheets — Blue Annld	Comp Tin plate.	Comp Fin. Steel.
Feb. 1921	2.30	2.35	2.13	57½	3.00	3.19	2.30	4.22	5.45	3.30	7.00	3.10
Mar.	2.10	2.10	2.00	57½	3.00	3.01	2.20	3.95	4.98	3.00	7.00	2.94
April ...	2.16	2.16	2.06	61	3.00	3.15	2.15	3.90	4.85	3.05	6.54	2.93
May	2.20	2.20	2.10	62½	3.00	3.25	2.20	4.00	5.00	3.10	6.25	2.93
June	2.15	2.06	2.08	62½	2.75	3.00	2.10	3.86	4.80	2.95	5.90	2.83
July	1.96	1.93	1.88	64	2.56	2.81	1.90	3.46	4.40	2.55	5.75	2.63
Aug.	1.84	1.84	1.75	64½	2.50	2.75	1.75	2.94	3.94	2.30	5.25	2.48
Sept. ...	1.68	1.67	1.67	66⅝	2.57	2.85	1.67	2.83	3.83	2.33	5.00	2.37
Oct.	1.60	1.59	1.60	68½	2.60	2.90	1.65	3.00	4.00	2.25	4.75	2.31
Nov.	1.60	1.51	1.56	68½	2.60	2.90	1.60	2.92	3.92	2.25	4.75	2.28
Dec.	1.57	1.50	1.53	69¾	2.44	2.70	1.52	3.00	4.00	2.25	4.72	2.23
Jan. 1922	1.50	1.50	1.50	71	2.25	2.50	1.50	3.00	4.00	2.25	4.75	2.16
Feb.	1.46	1.46	1.46	71	2.22	2.47	1.46	3.00	4.00	2.25	4.75	2.14
Mar.	1.41	1.39	1.41	71	2.25	2.40	1.40	3.00	4.00	2.25	4.61	2.09
April	1.50	1.49	1.50	71	2.25	2.40	1.50	3.12	4.12	2.37	4.66	2.16
May	1.52	1.52	1.55	71	2.25	2.40	1.55	3.15	4.15	2.40	4.72	2.18
June	1.60	1.60	1.60	71	2.25	2.40	1.60	3.15	4.15	2.40	4.75	2.22
July	1.62	1.62	1.62	71	2.25	2.40	1.62	3.15	4.15	2.40	4.75	2.23
Aug.	1.82	1.82	1.80	70⅛	2.26	2.41	1.80	3.27	4.27	2.46	4.75	2.36
Sept.	2.00	2.00	1.92	68	2.37	2.62	2.10	3.35	4.35	2.60	4.75	2.51
Oct.	2.00	2.08	2.00	66⅞	2.45	2.70	2.05	3.35	4.35	2.70	4.75	2.57
Nov.	2.00	2.00	2.00	66	2.45	2.70	2.00	3.35	4.35	2.55	4.75	2.57
Dec.	2.00	2.00	2.00	66	2.45	2.70	2.00	3.35	4.35	2.50	4.75	2.57
Jan. 1923	2.04	2.04	2.00	66	2.49	2.70	2.00	3.35	4.35	2.50	4.75	2.59
Feb.	2.16	2.18	2.16	64¼	2.61	2.80	2.16	3.40	4.49	2.55	4.78	2.72
Yearly averages:												
1913	1.42	1.41	1.38	79¾	1.50	1.70	1.39	2.20	3.28	1.68	3.56	1.72
1914	1.16	1.14	1.15	80	1.37	1.57	1.17	1.89	2.87	1.38	3.35	1.52
1915	1.30	1.29	1.31	79¼	1.48	1.66	1.27	1.93	3.85	1.49	3.19	1.63
1916	2.50	2.82	2.48	70⅞	2.45	2.53	2.34	3.06	4.85	2.99	5.34	2.80
1917	3.66	5.21	3.49	52⅛	3.48	3.56	3.95	6.29	8.21	6.15	7.85	4.46
1918	2.99	3.24	2.89	51⅛	3.25	3.50	2.89	4.98	6.24	4.23	7.72	3.79
1919	2.53	2.71	2.43	56¾	3.06	3.31	2.51	4.43	5.78	3.63	7.08	3.32
1920	2.99	3.20	2.99	55⅝	3.40	3.67	3.00	5.85	7.39	5.06	7.29	3.63
1921	1.07	1.96	1.89	63¾	2.77	2.98	1.96	3.54	4.57	2.74	5.83	2.69
1922	1.70	1.71	1.70	69½	2.31	2.51	1.72	3.19	4.19	2.43	4.73	2.31

Yearly Totals.

1922 ...	29,116,453		
1921 ...	16,826,946	1916 ...	41,401,917
1920 ...	40,881,392	1915 ...	31,284,212
1919 ...	33,694,795	1914 ...	22,019,784
1918 ...	43,051,022	1913 ...	30,280,130
1917 ...	43,619,200	1912 ...	30,284,682

SEMIFINISHED STEEL

Semifinished steel went at $36.50 for the first quarter, but closed January strong at $38.50 for prompt lots. Late in February some independent sheet mills began selling for April shipment at advances of about $5.00 a ton, some independent tin mills advanced their price $5.00 a ton, and even the Steel Corporation, although already sold through June, advanced its prices. Sheet bars responded quickly, as usual, and prospect developed of the second quarter settling price being $42.50, between mills and regular customers, but with consumers not regular customers of any mill being forced to pay higher prices still.

BARS, SHAPES AND PLATES

The general basis market price on bars, shapes and plates advanced during February from 2.10c to 2.25c, at which price it promised to stop, any higher prices to be realized being in the nature of premium prices, for delivery. As high as 2.60c was done on prompt plates.

TUBULAR GOODS

Pipe mills entered February well sold up as far ahead as they usually sell, and with the Sinclair pipe line just distributed, involving about 50,000 tons. Throughout the month jobbers were eager to buy, some of the inquiry being regarded by mills as speculative. Sales were restricted and by the end of the month several mills, including the leading interest, were indisposed to enter additional oil country goods business, except on the basis of market price ruling at date of shipment.

IMPORTANT STEEL PRICE CHANGES

At the end of 1920 prices of independent steel producers had declined to Industrial Board schedule of Mar. 21, 1919, to which U. S. Steel Corporation had meanwhile adhered. These prices are given under date of Jan. 1, 1921, subsequent changes being in open market. Only the more important changes are listed.

BARS.

Jan. 1, 1921	2.35	Feb. 18, 1922	1.40
Feb. 11	2.00	Mar. 29	1.50
April 13	2.10	May 17	1.60
June 24	2.00	July 26	1.70
July 5	1.90	Aug. 9	1.80
July 26	1.75	Aug. 25	1.90
Sept. 9, 1921	1.65	Sept. 27,	2.00
Sept. 27	1.60	Jan. 31, 1923	2.10
Nov. 9	1.55	Feb. 16,	2.20
Dec. 19	1.50	Feb. 23,	2.25

PLATES

Jan. 1, 1921	2.65	Sept. 27	1.60
Feb. 10	2.40	Oct. 27	1.55
Feb. 17	2.25	Nov. 9	1.50
Feb. 23	2.10	Feb. 18, 1922	1.40
April 13	2.20	April 5	1.50
June 10	2.00	May 25	1.60
July 15	1.90	July 26	1.70
July 26	1.85	Aug. 9	1.80
Aug. 25, 1921	1.80	Aug. 25	2.00
Sept. 2	1.75	Jan. 19, 1923	2.10
Sept. 9	1.65	Feb. 9,	2.20
		Feb. 23,	2.25

SHAPES

Jan. 1, 1921	2.45	Sept. 26	1.65
Feb. 11	2.25	Sept. 27	1.60
Feb. 17	2.20	Dec. 21	1.50
Feb. 28	2.10	Feb. 18, 1922	1.40
April 13	2.20	Mar. 9	1.50
June 24	2.00	May 25	1.60
July 22	1.90	July 26	1.70
July 26	1.85	Aug. 9	1.80
Aug. 25, 1921	1.80	Aug. 25	2.00
Sept. 2	1.75	Jan. 19, 1923	2.10
Sept. 9	1.70	Feb. 16,	2.20
		Feb. 23,	2.25

STEEL PIPE

Jan. 1, 1921	57½%	Sept. 16	68½%
Mar. 24	58½%	Dec. 16,	71%
April 7	59½%	Aug. 23, 1922	68%
April 13	62½%	Oct. 19, 1922	66%
July 9, 1921	64½%	Feb. 3, 1923	64%

WIRE NAILS

Jan. 1, 1921	3.25	Dec. 9	2.75
Feb. 17	3.10	Dec. 21	2.50
Mar. 4	3.00	Feb. 21, 1922	2.40
April 13	3.25	Aug. 30	2.60
June 1	3.00	Sept. 27,	2.70
July 9, 1921	2.75	Feb. 1, 1923	2.80
Sept. 12	2.90		

BLACK SHEETS

Jan. 1, 1921	4.35	Aug. 25	2.75
Feb. 11	4.15	Sept. 22	3.00
Mar. 8	4.00	Nov. 1	2.90
Mar. 17	3.85	Nov. 25	3.00
April 13	4.00	April 7, 1922	3.15
July 5	3.50	Aug. 14	3.35
July 26, 1921	3.25	Feb. 23, 1923	3.60
Aug. 1	3.00		

TIN PLATE

Jan. 1, 1921	7.00	Sept. 19	4.75
April 13,	6.25	Mar. 21, 1922	4.60
June 7	6.00	April 5	4.65
June 14	5.75	April 24	4.70
Aug. 1, 1921	5.25	May 17	4.75
Sept. 15	5.00	Feb. 26, 1923	5.00

BLUE ANNEALED SHEETS

Jan. 1, 1921	3.55	Aug. 16	2.25
Feb. 11	3.35	Sept. 22	2.50
Feb. 16	3.20	Nov. 1	2.25
Mar. 8	3.00	April 7, 1922	2.40
April 13	3.10	Aug. 14	2.50
June 10	2.90	Sept. 20,	2.60
July 6, 1921	2.65	Nov. 23,	2.50
Aug. 2	2.40	Feb. 23, 1923	2.75

GALVANIZED SHEETS

Jan. 1, 1921	5.70	Aug. 2	4.00
Feb. 11	5.55	Aug. 25	3.75
Feb. 16	5.35	Sept. 22	4.00
Feb. 24	5.25	Nov. 1	3.90
Mar. 8	5.10	Nov. 25	4.00
Mar. 17	5.00	April 7, 1922	4.15
June 22	4.75	Aug. 14,	4.35
July 5, 1921	4.50	Feb. 23, 1923	4.75
July 22	4.25		

SHEETS

Expectation that there would be a uniform price on sheets for second quarter has been disappointed. The mills have adopted various sales policies as to price and delivery period over which they would enter business. Some mills have been selling for second quarter and some for April while some seem to be out of the market. Prices demanded by independents range from 3.60c to 4.00c on common black, from 4.75c to 5.10c for galvanized, from 5.25c to 5.50c for automobile sheets and from 2.75c to 3.25c for blue annealed sheets. Late in February the American Sheet & Tin Plate Company advanced prices as follows: Blue annealed, 2.50c to 2.65c; black, 3.35c to 3.50c; galvanized, 4.35c to 4.60; automobile sheets, 4.70c to 5.00c. The company was already practically sold up through June while it is unlikely to open order books for third quarter before about the middle of April. The action seems to have been taken to relieve the company of some of the pressure to accept additional orders through its prices being so much below those of the independents.

TIN PLATE

Production of tin plate continued heavy though February, probably at record rate for the time of year and with prospects of very heavy demand through the canning season. The $4.75 price, reaffirmed last November for the first half of this year, was rather unsatisfactory to producers at the time and became still more so as tin advanced and the steel situation tightened. Makers of packers' cans claim they must be protected as to the price by half years as they sell their cans for such periods, otherwise the tin plate market would have advanced of its own accord before this. However, late in February some independents advanced their price from $4.75 to $5.00 and the leading interest then advanced to $4.95, although already rather fully obligated to July 1st. Afterwards one independent advanced to $5.50.

FABRICATED STEEL.

Sales of fabricated structural steel in February, verbally reported, amounted to about 190,000 tons. In January, according to returns made to the Bureau of the Census by 147 firms, having a ca-

Allegheny Steel
and
Allegheny Iron

SHEETS BOILER TUBES
PLATES WASHERS
STEEL CASTINGS
Hot and Cold Pressed Stampings

ALLEGHENY STEEL COMPANY
PITTSBURGH, PA.

SOLICITING AGENTS
501 Fifth Ave., New York 1436 Dime Bank Bldg., Detroit, Mich.
Steel Sales Corporation, 129 South Jefferson Street, Chicago.

pacity of 218,645 tons per month, orders booked amounted to 164,404 tons. The latter is equivalent to 75.2% of capacity, whereas the sales verbally reported in February were equivalent to 86% of shop capacity. The estimated February orders were the largest since April, 1922. In the latter month, according to Government returns, the orders booked amounted to 198,529 tons, equivalent to 89.9% of capacity.

Large orders taken in February were partially due to the number of contracts reported having been placed in Canada. During one week total orders amounted to 72,000 tons. It is probable that some of these orders at least, which went to Dominion bridge plants will not be included in the U. S. Government returns. Oil companies alone were responsible for over 46,000 tons of fabricated orders placed and railroad work amounted to 15,000 tons in February.

At the beginning of March inquiries actively in the market amounted to about 150,000 tons, including about 50,000 tons of oil tanks, and about 10,000 tons for railroad work. In addition there is in the background about 200,000 tons of work pending, half of which is for prospective large bridge work in the eastern district.

It would not be surprising if there should be a sharp falling off in fabricated steel orders after March because of the high prices prevailing for steel and the upward tendency of labor. Some large contractors in the east now are not disposed to enter into new obligations which will involve new contracts running into the Fall months of this year.

The following table shows actual sales reported to the Government from April 1922 to February 1923 inclusive and estimated total bookings by the month for the same period:

	Actual Tonnage Booked	Per cent. of Capacity	Estimated Total Bookings
April	198,529	89.9	224,800
May	180,558	81.8	204,500
June	162,139	73.4	183,500
July	152,023	68.9	172,300
August	150,700	68.3	170,800
September	141,418	64.1	160,300
October	126,535	57.3	143,300
November	107,709*	48.4	121,000
December	128,439**	57.8	144,500
1923—			
January	164,404†	75.2	188,000
February	190,000‡	86.0‡	.....

* Reported by 161 firms.
** Reported by 159 firms.
† Reported by 147 firms.
‡ Estimated.

Percentage of fabricated orders to total shop capacity.

	1922	1921	1920	1919	1918	1917
Jan.	40%	18%	75%	12%	53%	61½
Feb.	43½	14	95	12½	55½	59
Mar.	77	29	83½	17½	47	68
April	89.9	31	68	24½	64	61
May	81.8	28	61½	49	60	56½
June	73.4	37	50	65	56	47½
July	68.9	33½	50	74	116½	41½
Aug.	68.3	33	40	78½	57	38
Sept.	64.1	48	43	78½	60	29
Oct.	57.3	54	25½	77½	43	61½
Nov.	48.4	55	27½	69	27	77
Dec.	57.8	40	26	85	29	114
Av.	64.2	35	53¾	53½	55½	59½

	1923.
1923—	
January	75.2
February	86.0

SCRAP

The scrap market stiffened during February, with higher prices developing in all markets and with somewhat heavier buying. The scrap market did not, however, respond to the much stronger position of finished steel products and the advancing tendency in pig iron, to the extent it usually responds. This conservatism in scrap, however, was natural considering the general underlying con-

IRON AND STEEL SCRAP PRICES

	Heavy melting steel. Pittsb.,	Phila.,	Chic.	No. 1 cast. Pitts.	Chic.*
Jan., '22	14.67	11.45	11.70	16.60	12.75
Feb. ...	14.25	11.50	11.75	16.25	12.80
Mar. ...	25.35	11.75	12.50	16.25	13.50
April ..	16.60	14.25	13.80	17.25	14.70
May ...	17.25	14.70	14.95	18.25	15.80
June ...	17.25	14.50	14.80	18.60	15.50
July ...	16.85	14.40	15.40	19.25	16.00
Aug. ...	17.45	14.75	16.00	19.35	17.25
Sept. ..	20.00	17.00	17.50	21.75	18.60
Oct. ...	21.00	18.35	18.65	24.00	19.60
Nov. ...	20.50	16.65	17.60	23.20	18.50
Dec. ...	20.40	16.70	17.50	22.75	18.35
Year ..	17.63	14.67	15.18	19.46	16.11
Jan., '23	22.00	20.85	19.30	23.50	20.40
Feb. ...	23.35	21.10	20.00	24.15	22.50

* Per net ton.

ditions in the steel market, particularly the fact that the movement in steel is regarded as likely to be of relatively short duration. The scrap market cannot trail behind steel in point of time, it must be ready to anticipate coming readjustments, and thus the advance has been tempered by conservatism.

FERRO-ALLOYS

Sales of British ferromanganese in February, prior to the advance from $107.50 to $110.00 a ton are estimated at 8,000 to 10,000 tons c.i.f. Atlantic ports, duty paid. This is for 80% alloy for shipment over the remainder of the first half of the year, mainly for second quarter shipment. The advance by English makers of 80% alloy was announced here February 17th. The market remained quiet for about a week or ten days following the higher prices when a supplementary demand developed with sales of about 3,000 tons at $110 c.i.f. Atlantic ports duty paid for shipment from England after July 1st, foreign makers having sold all their available output for shipment during the first half of the year. Domestic makers of ferromanganese are now asking $110 per ton at the furnace, and there are rumors that a further advance in the price of the foreign alloy is probable.

Spiegeleisen was relatively quiet in February, sales being mainly confined to a few carload lots but one or two exceptional lots of 1,000 tons were also disposed of at prices ranging at $36 to $37 furnace for 19% to 21% alloy. Competition developed on one or two round lots but otherwise there was but little interest in the market although a firm tone prevailed.

A majority of the large consumers of 50% ferro silicon had requirements well covered for the first half if not for the whole of 1923 when the year opened, but there were a number of relatively small supplementary sales in January and February and the tone of the market strengthened. One large producer is now holding firmly at $90 delivered as a minimum. One interesting development is that some consumers have already specified against their full quota for 1923 and supplementary contracts are now under negotiation. There are also other substantial inquiries in the market. A stronger tone has been developed as a result of the falling behind of some large producers in making deliveries against contracts.

Ferro-chromium has been quiet but steady as most large consumers covered the first half of 1923 contracts in December but there is moderate demand for small lots now at 12c to 14c a pound for contained chromium delivered. Indian chrome ore at the beginning of March was held at $20.50 per ton, Rhodesian ore was nominally held at $24 and New Caledonian ore at about $26 per ton c.i.f. Atlantic ports.

Manganese ore is a little more active with inquiries in the market for cargo lots for May-June-July shipment. Negotiations on Brazilian ore were at $34 to $34.50 c.i.f. As noted above larger sales of ferromanganese have been made at $110 seaboard and there are now expecttions of a further advance in prices of the foreign alloy.

Ferro-tungsten is in fair demand for small lots at 85c to 88c per pound of contained tungsten. Some sales of tungsten metal powder were made recently at $1 per pound. Some activity has developed in tungsten ore after a short period of dullness. Recent sales of 150 tons of ordinary quality Chinese ore are reported at $7.75 to $8.00 per unit.

A fair demand is reported for molybdenum, high grade concentrates at 65c to 70c per pound for contained metal.

COAL

This writing finds the coal industry on the threshold of Spring, and enjoying, therefore, a brighter outlook generally than at any time for the last six months or more. With the arrival of April 1st, a new coal year will officially start, and with it the trade as a whole should see the beginning of a period of greater stability than it has enjoyed for more than five years. Within the last six months, many ramifications have been experienced as an aftermath of the five months' strike in both the bituminous and anthracite fields, but the new coal year promises to start without any labor troubles, and the hope that an adjustment of wage scales in the anthracite fields will be effected before the present

agreement expires on August 31st. The only dark spot in the anthracite outlook at present is the possibility of a suspension on September 1st unless a new agreement in that field is reached, and it is certain that all factors will strive to avert a repetition of the strike deplorable condition of motive power on that beset the anthracite industry in 1922.

In the bituminous end of the trade, the chief drawback that looms up is the the railroads and its effect on car supply. Because of this, many operators, particularly those in Pennsylvania, are reluctant to make any contracts for the year beginning April 1st until they are able to form some idea of what is to come in the way of improved car supply. Under present conditions, they are unable to operate at a steady enough rate to make business profitable at such prices as are demanded by consumers, and they are therefore unwilling in many instances to commit themselves on contract obligations so long as the outlook as to car supply is so dubious.

Complaints as to lack of motive power are heard the country over. One railroad in the southeast territory is reported as having every other engine condemned, or on the verge of being so. As a result of such conditions all over the country, coal men are complaining of the piling up of shipments from which many cancellations result. Also, cars either fail to arrive, or arrive in a swarm, flooding markets and overstocking yards.

With the coming of milder weather, the situation in New England is showing some improvement, although embargoes against the movement of bituminous coal are effective on all roads in that territory. Within the past month, Congress has come out as being flatly opposed to an embargo against shipments of hard coal to Canada, a measure which, had it been instituted, would certainly have been detrimental to the industrial relations between the two countries.

It now appears that the export trade through Atlantic seaboard ports is due for a session of increased activity because of the shortage of coal in Europe caused by suspension at the Ruhr mines, and consequent added demand on England.

In the middle west, Spring seems very near, and many buyers are marking time until the tendencies of the new coal year are more clearly defined. The market there is generally soft on account of mild weather. In the northwest, a break in the weather is also reported, and dock operators are looking forward with keen anticipation to the opening of the lake navigation season. April 20th has been tentatively set as the date.

Indications generally are that the demand for steam coals from industrial quarters will be heavy during the coming season, due to increased operation of plants in all sections. At present, however, industrials are fairly well stocked with coal, and the spot market therefore is more or less inactive. Most consumers are thought to be waiting for the contract situation to adjust itself, and what is necessary now is the bringing together of the price ideas of consumer and operator.

In central Pennsylvania the contract offerings are on the basis of $3.75 to $4.00 for the best grades; and about $3.25 to $3.75 for high grade coals classifying as Pool 9. The good or medium grades that would classify in Pool 10 range on contract offers from $2.90, or less, up to about $3.25. It is reported that most of the railroads are unwilling to pay more than $2.25 for their fuel supply.

PIG IRON OUTPUT IN 1922

Grades.	For sale.	For maker's use.	Total Gr. tons.
Basic	1,198,106	12,643,261	13,841,367
Bess. and low phos.	488,865	7,324,338	7,813,203
Fdy., incl. ferro-silicon	3,708,600	267,831	3,976,431
Malleable	894,837	156,658	1,051,495
Forge or mill	65,347	148,863	214,210
Ferromanganese ..	55,002	95,113	150,115
Spiegeleisen	43,548	29,895	73,443
All other grades ...	47,545	52,095	99,640
Total, gr. tons	6,501,850	20,718,054	27,219,904

EXPORTS OF IRON AND STEEL PRODUCTS FROM THE U. S.

Value of tonnage and non-tonnage.

	*1922	1921	1920
Feb.	12,950,603	101,205,061	71,893,929
Mar.	18,836,718	67,870,739	94,784,845
April	17,559,081	49,609,605	87,496,206
May	17,749,475	41,365,886	99,393,536
June	18,649,816	39,975,035	88,787,349
July	14,611,858	27,639,787	92,147,844
Aug.	13,963,749	27,647,816	89,065,536
Sept.	14,380,851	26,740,228	87,556,292
Oct.	14,626,411	29,706,437	103,546,679
Nov.	14,249,434	28,543,142	104,827,626
Dec.	16,668,116	29,502,448	123,178,579

* Excluding machinery.

1922..	$ 188,841,433	1916..	$871,372,322
1921..	607,427,146	1915..	390,897,123
1920..	1,112,904,802	1914..	199,861,684
1919..	968,575,142	1913..	293,934,160
1918..	1,035,291,736	1912..	289,128,420
1917..	1,240,984,979	1911..	249,656,411

Tonnage Lines.

(Gross tons.)

	1922	1921	1920	1919
Jan.	160,920	547,394	333,601	360,456
Feb.	133,975	393,328	308,185	234,793
Mar.	208,843	230,635	417,216	344,500
April	198,830	162,592	395,120	408,204
May	230,062	104,072	420,359	447,050
June	212,295	119,081	402,707	544,580
July	157,169	86,523	458,866	287,823
Aug.	145,640	75,827	431,484	396,679
Sept.	129,475	95,169	409,200	364,504
Oct.	132,924	106,582	452,015	302,456
Nov.	127,782	122,290	434,297	295,045
Dec.	150,170	134,415	498,765	254,676

Yearly totals.

1922	1,986,297	1916	6,105,881
1921	2,213,042	1915	3,532,606
1920	4,961,851	1914	1,549,554
1919	4,239,837	1913	2,745,535
1918	5,338,037	1912	2,947,596
1917	6,441,760	1911	2,187,724

IMPORTS OF IRON ORE INTO THE UNITED STATES.

	1922	1921	1920	1919
Jan.	19,433	82,424	88,881	33,251
Feb.	10,016	47,466	100,105	28,039
Mar.	12,013	26,483	108,643	54,992
April	2,710	35,645	88,670	24,195
May	29,707	58,704	103,325	28,164
June	133,817	8,424	104,364	30,605
July	166,711	7,040	28,846	23,347
Aug.	160,173	24,570	174,169	32,117
Sept.	127,838	4,954	73,675	48,478
Oct.	*123,207	5,838	141,026	30,386
Nov.	165,648	12,065	139,854	89,933
Dec.	.....	2,155	117,898	52,954

Yearly totals.

1921	315,768	1915	1,341,281
1920	1,273,456	1914	1,350,588
1919	476,461	1913	2,594,770
1918	787,468	1912	2,104,576
1917	971,663	1911	1,811,732
1916	1,325,736		

* Sept. 22 to Oct. 31.

BITUMINOUS COAL PRODUCTION

(Net tons of 2,000 lbs.)

	1923.	1922.	1921.
Jan. ...	49,400,000	37,604,000	40,270,000
Feb. ..	42,130,000	40,980,000	30,851,000
Mar. ...	.....	50,167,000	30,392,000
April ..	.....	15,700,000	27,553,000
May ...	.....	20,290,000	33,330,000
June ...	.....	22,309,000	33,896,000
July ...	.....	17,003,000	30,385,000
Aug. ...	.....	27,358,000	34,538,000
Sept. ..	.....	39,510,000	35,127,000
Oct. ...	.....	45,141,000	43,733,000
Nov. ...	.....	45,303,000	36,020,000
Dec. ...	.....	44,500,000	30,975,000
Total	.....	405,944,000	407,000,000

CONNELLSVILLE COKE.

Spot for prompt, per net ton f.o.b. ovens.

	— Furnace —			— Foundry —		
	1923.	1922.	1921.	1923.	1922.	1921
Jan.	8.30	2.85	5.10	9.25	4.00	6.75
Feb.	7.30	3.10	4.80	8.50	4.15	6.15
Mar.	....	3.38	4.43	....	4.50	5.63
Apr.	....	4.44	3.60	....	5.21	5.15
May	....	6.50	3.40	....	6.75	5.10
June	....	7.50	3.12	....	7.85	4.67
July	....	11.35	2.95	....	11.70	4.20
Aug.	....	13.35	2.95	....	15.00	4.20
Sept.	....	11.50	3.26	....	13.25	4.34
Oct.	....	9.70	3.35	....	11.90	4.40
Nov.	....	7.35	3.15	....	8.70	4.17
Dec.	....	7.75	2.90	....	8.15	4.00
Av.	....	7.40	3.58	....	8.43	4.90

BRITISH IRON AND STEEL OUTPUT.

Pig Iron—(Gross tons).

	1923	1922	1921
Jan.	567,900	288,000	642,100
Feb.	.....	300,100	463,600
March ...	.....	389,800	386,000
April	.....	394,300	60,300
May	.....	407,900	13,600
June	.....	369,200	800
July	.....	399,100	10,200
Aug.	.....	411,700	94,200
Sept.	.....	430,300	158,300
Oct.	.....	481,500	235,500
Nov.	.....	493,900	271,800
Dec.	.....	533,700	275,000
Total ...	.....	4,899,500	2,611,400

Steel Ingots and Castings.

	1923	1922	1921
Jan.	624,300	327,500	493,400
Feb.	.....	418,800	483,500
March ...	.....	549,400	359,100
April	.....	404,200	70,600
May	.....	462,300	5,700
June	.....	400,200	2,700
July	.....	473,100	117,200
Aug.	.....	520,800	434,100
Sept.	.....	555,900	429,300
Oct.	.....	565,200	405,400
Nov.	.....	600,800	442,800
Dec.	.....	546,100	381,000
Total ...	.....	5,831,900	3,624,800

COPPER IN FEBRUARY

Sales of copper in February were more than double what they were in January, according to trade estimates. It would not be surprising to find when statistics are available that February sales on domestic and foreign account were record-breaking, exceeding those made in December or in May 1922. In each of those months, it is estimated that over 200,000,000 pounds were disposed of.

The vigorous buying movement which marked February resulted in an advance in prices of unwrought copper of 1⅞c to 2c a pound, while prices of finished copper and brass products were advanced from 1⅝c to 2¼c a pound up to March 1st, while during the first few days of March, there was another advance in finished products ranging from ¼c to 1c a pound so that on March 3rd, the advance in finished copper and brass products ranged from 2c to 3¼c a pound.

At times during the month the market was buoyant both at home and abroad; at other times excited and feverish. Belated buyers, anxious to cover requirements after a substantial advance had already been established, rushed into the market and helped to bring about a further advance of 1c a pound in unwrought copper. Manufacturers of drawn and rolled products, after having covered requirements on most of the business in hand, placed numerous supplementary contracts, as orders kept coming in from ultimate consumers in larger number and for large amounts in the aggregate.

Speculation Abroad.

Heavy speculation, mainly on American account, in London, was an important factor in the month's movement, stimulating buying here at various times when the market was lagging. Standard at London advanced £7 2s 6d to £7 17s 6d during the month with very few minor reactions. Transactions were enormously heavy, especially late in the month. Futures were, of course, most active, but there was unusual buying of cash standard. American electrolytic advanced £7 5s to £8 during the month. At times foreign dealers and operators showed small faith in the higher prices established both at home and abroad, bringing about considerable short selling of standard and the selling of American electrolytic at five to ten points under American producers' delivered prices in Europe. These transactions, however, scarcely halted the upward movement.

It is notable that exporters here were very cautious throughout the month so that trading in the f.a.s. position here was relatively light. Most of the foreign business was transacted through the Copper Export Association agents in Europe.

Statistical Position.

The statistical position of the industry is undoubtedly strong, but some of the trade estimates of deliveries on domestic and foreign account must be taken with reserve. The Government report of exports for December did not become available until after the middle of February, showing a foreign outgo of a little less than 52,000,000 pounds including finished products, making the total for the year 1922 about 715,000,000 pounds, including semifinished products. This is at an average rate of nearly 60,000,000 pounds a month. Exports made from New York in January

COPPER PRICES IN FEBRUARY

Day	New York — Lake.	New York — Electro.	London — Cast.	London — Stand. £ s. d.	London — Electro. £ s. d.
1	15.12½	14.93¾	14.50	65 12 6	72 5 0
2	15.12½	14.87½	14.50	65 5 0	72 5 0
5	15.12½	14.87½	14.50	65 5 0	72 0 0
6	15.12½	14.87½	14.50	65 5 0	72 0 0
7	15.18¾	14.87½	14.50	65 10 0	72 5 0
8	15.18¾	14.87½	14.50	65 10 0	72 5 0
9	15.18¾	14.87½	14.60	65 12 6	72 10 0
12		Holiday		65 15 0	72 10 0
13	15.25	15.00	14.62½	65 17 6	72 15 0
14	15.37½	15.05	14.65	66 5 0	72 15 0
15	15.50	15.31½	14.75	66 12 6	73 0 0
16	15.62½	15.50	15.12½	67 15 0	74 10 0
19	16.00	15.81¼	15.62½	68 17 6	75 10 0
20	16.25	16.00	15.62½	69 0 0	76 0 0
21	16.25	16.00	15.62½	68 17 6	75 10 0
22		Holiday		69 17 6	76 10 0
23	16.50	16.18¾	16.00	71 0 0	77 10 0
26	16.87½	16.56¼	16.37½	71 15 0	79 0 0
27	17.00	16.68¾	16.37½	72 0 0	79 10 0
28	17.00	16.68¾	16.37½	72 7 6	79 10 0
High ..	17.00	16.75	16.37½	72 7 6	79 10 0
Low	15.12½	14.85	14.50	65 5 0	72 0 0
Aver. ..	15.76	15.50	15.15	67 14 0	74 10 0

and February indicate an increased average since the first of the year, and according to some trade estimates January exports this year were the largest since March 1920, the outgo in January being estimated 38,400 tons whereas in March 1920, they were 39,236 tons. Thus the average exports in the first two months this year were about 73,000,000 pounds a month.

Large Deliveries.

Deliveries into domestic consumption during the first two months of the year may be estimated to have averaged about 125,000,000 pounds a month, indicating total deliveries into domestic and foreign consumption in the first two months, about 396,000,000 pounds, which is at an average of 198,000,000 pounds a month. Refined output in the first two months amounted to about 370,000,000 pounds or at average monthly rate of 185,000,000 pounds, it being assumed that about 120,000,000 pounds a month were derived from United States smelters and 65,000,000 pounds a month from importations, the latter including some refined as well as blister copper.

Refined Stocks March 1st.

Thus the indication is that during the first two months of the year deliveries into domestic and foreign consumption exceeded total refined output by 26,000,000 pounds. Assuming the Government estimate of refined stocks on the first of the year, 277,000,000 pounds, to be correct, the inference would be that total refined stocks on March 1st were approximately 250,000,000 pounds, that is, stocks of refined copper in the hands of producers today are at the lowest point since January 1st, 1919, when, according to Government returns, they were 180,000,000 pounds. It should be noted, however, that stocks of blister copper and material in process of refining at the beginning of 1923 were approximately 352,000,000 pounds. Apparently there has been little change if any in blister stocks since the beginning of the year.

February Prices.

At the beginning of February electrolytic was being sold by producers at 15c delivered for February, March and second quarter shipment. By the end of the month the market had advanced to 16⅞c

Dallas Brass & Copper Co.

Manufacturers of

Brass and Copper Products

Prompt Mill Deliveries

Prompt Shipments From Warehouses

CLEVELAND CHICAGO DETROIT

delivered and a day or two later the market had advanced to 17c delivered

In the outside market electrolytic for the same positions sold at 14⅞c to 15⅛c f.o.b refinery at the beginning of February while at the close of the month prices had advanced to 16¾c refinery with a strong upward tendency.

Lake copper throughout the month was ⅛c to ¼c a pound above electrolytic, and casting copper advanced from 14½c at the beginning, to 16½c f.o.b. refinery at the close of February.

COPPER AND BRASS PRODUCTS

A very heavy volume of business was transacted in wrought copper and brass in February. The advancing tendency in prices of unwrought copper stimulated buyers of wire, sheets, rods and tubes to action and as the anticipated advance was realized, buying was accelerated. Apparently, there were several buying waves throughout last month and after each important advance in unwrought copper, prices of finished material were adjusted to higher levels.

The American Brass Company made its first upward revision on February 15th, followed in quick succession by advances on the 17th, 19th, 24th and 26th. An advance was also made on March 3rd. On the latter date prices of all copper and brass products were advanced ¼c with the exception of tubing. Brazed tubing was advanced 1.00c a pound and seamless tubing remained unchanged.

Advance in Prices.

From February 1st to March 3rd the prices of wire and rods were advanced 2.00c a lb.: copper in sheets, rolls, copper bottoms and copper rods, round, were advanced 2¼c; high brass sheet, wire, rods and low brass sheets were advanced 1⅞c a pound; low brass wire, 2⅛c; low brass rods, 2.00c; commercial bronze sheets, commercial bronze and gilding wire, and commercial bronze rods, 2½c; tobin bronze rods and tobin bronze sheets, 2⅛c; brass and bronze tubing, 2⅞c; copper and commercial bronze, brazed tubing, 3¼c; yellow metal dimension sheets, yellow metal dimension sheathing and nails and yellow metal rods, 2⅛c; seamless high brass tubing, 2.00c; seamless low brass tubing and seamless copper tubing, 2¼c; seam-

LAKE COPPER PRICES

Average prices in New York

	1923.	1922.	1921.	1920.	1919.
Jan.	14.92	13.76	13.53	19.76	21.75
Feb.	15.76	13.24	13.33	19.09	17.87
Mar.	.....	13.03	12.58	18.87	15.48
April	.....	12.91	12.89	19.05	15.73
May	.....	13.42	13.12	18.85	16.30
June	.....	13.97	13.04	18.55	17.93
July	.....	14.07	12.75	18.83	22.08
Aug.	.....	14.09	12.11	18.72	22.96
Sept.	.....	14.19	12.23	18.53	22.48
Oct.	.....	14.16	13.01	16.87	21.94
Nov.	.....	14.07	13.30	14.97	20.49
Dec.	.....	14.46	13.80	14.01	18.88
Average	.....	13.78	12.98	18.01	19.49

Annual Averages.

1918	24.68	1913	15.70
1917	29.18	1912	16.58
1916	28.17	1911	12.71
1915	17.64	1910	13.12
1914	13.61	1909	13.39

ELECTROLYTIC COPPER PRICES

Average prices in New York

	1923.	1922.	1921.	1920.	1919.
Jan.	14.66	13.60	12.85	19.02	20.00
Feb.	15.50	12.97	12.79	18.61	16.91
Mar.	.....	12.84	12.23	18.36	15.01
April	.....	12.71	12.54	18.54	15.40
May	.....	13.29	12.83	18.28	16.01
June	.....	13.71	12.76	17.97	17.65
July	.....	13.90	12.35	18.61	21.71
Aug.	.....	13.96	11.76	18.44	22.22
Sept.	.....	13.88	12.10	18.04	21.95
Oct.	.....	13.80	12.75	16.30	21.50
Nov.	.....	13.79	13.16	14.39	19.96
Dec.	.....	14.22	13.67	13.48	18.48
Average	.....	13.55	12.65	17.50	18.90

Annual Averages.

1918	24.68	1913	15.52
1917	29.19	1912	16.48
1916	28.46	1911	12.55
1915	17.47	1910	12.88
1914	13.31	1909	13.11

CASTING COPPER PRICES

Average prices in New York

	1923.	1922.	1921.	1920.	1919.
Jan.	14.30	12.96	12.61	18.81	18.48
Feb.	15.15	12.61	12.45	18.21	16.45
Mar.	.....	12.54	11.83	18.11	14.82
April	.....	12.46	11.82	18.40	15.06
May	.....	12.84	12.24	18.16	15.49
June	.....	13.33	12.08	17.65	17.17
July	.....	13.34	11.68	18.12	21.10
Aug.	.....	13.43	11.43	18.00	21.71
Sept.	.....	13.39	11.75	17.76	21.28
Oct.	.....	13.39	12.43	16.01	20.66
Nov.	.....	13.40	12.53	14.12	19.37
Dec.	.....	13.81	12.97	13.12	18.21
Average	.....	13.13	12.15	17.21	18.32

Annual Averages.

1918	24.68	1914	13.18
1917	27.64	1913	15.33
1916	26.51	1912	16.29
1915	16.76	1911	12.42

less commercial bronze tubing, 2¼c per pound.

Heavy Buying.

It will be recalled that large buying began the latter part of February and the movement was quite generally felt in all sections of the country. Power companies and other public utilities, electric equipment manufacturers and telephone and telegraph companies were among the largest buyers placing contracts for delivery during the second quarter and in some instances for later delivery. Numerous small consumers also were constant although late buyers. The heavy orders for railroad equipment, the phenomenal activity in building, the extension of wire lines by telephone companies and the record-breaking output of automobiles, in conjunction, caused an overwhelming demand for finished copper and brass.

Plant Operations.

As a result of the large orders in hand and the heavy additional commitments made in February, brass mills in the Connecticut Valley often operated at night as well as during the day and mid-west rolling mills operated as close to capacity as labor supply would permit. It is estimated that as a whole the industry operated at a rate of 85% to 90% of capacity. The largest interests in the east and in the west made heavy shipments against contracts as well as

EXPORTS OF COPPER.

As compiled by the New York Metal Exchange from Custom House returns, in tons of 2,240 lbs.

	1922.	1921.	1920.	1919.
Jan.	24,679	24,068	21,804	35,343
Feb.	22,910	27,748	25,700	17,937
Mar.	35,851	17,151	39,236	12,036
April	28,367	18,397	28,644	10,272
May	27,894	15,736	37,090	10,489
June	29,191	22,339	25,581	13,183
July	28,584	22,774	20,430	21,525
Aug.	26,889	19,110	20,121	23,530
Sept.	25,144	28,343	10,751	29,093
Oct.	22,681	22,934	10,073	21,793
Nov.	24,727	32,407	16,954	14,470
Dec.	22,201	27,394	18,304	17,498
Total	319,118	278,401	274,688	227,169

Annual Totals.

1918	328,844	1913	382,810
1917	493,256	1912	327,965
1916	327,310	1911	336,801
1915	270,704	1910	301,935
1914	360,229	1909	301,657

BRASS AND COPPER PRODUCTS.

All brass and copper products advanced in February, the advance in seamless tubes ranging from 2.00c to 2.25c a pound, in the other copper products 2.00c lb., and in the other brass products from 1.62½c to 2.00c a pound.

On March 3rd, another advance of ¼c per pound on copper products, and from ¼c to 1.00c a pound on brass products, except seamless tubes, took place. The advance in nickel silver in February, ranged from 1.00c to 1.25c a pound. The two last price lists issued follow:

COPPER PRODUCTS.

	Feb. 26	March 3
Sheet copper	24½	24¾
Copper bottoms	33	33¼
Copper in rolls	23	23¼
Brush copper	25½	25¾
Sawed copper	25¼	25½
Drawn copper shapes ..	23	23¼
Commutator copper ...	24¼	24½

BRASS PRODUCTS.

Sheet Metal.

High brass	20⅞	21⅛
Low brass	22⅝	22⅞
Rich low brass	23⅛	23⅜
Commercial bronze ..	24½	24¾
Common gilding	24½	24¾
Best spring drawing and spinning brass	21⅞	22⅛

Wire.

High brass	21⅜	21⅝
Low brass	23⅛	23⅜
Commercial bronze and gilding	25	25¼
Best spring and brazing brass	22⅜	22⅝

Rods.

High brass (free turning)	19⅛	19⅜
Low brass	23⅜	23⅝
Commercial bronze ...	25¼	25½

Brazed Tubes.

Brass	27⅞	28⅞
Copper and commercial bronze	33¼	34¼
Open seam brass	27⅞	28⅞
Open seam copper and commercial bronze .	33¼	34¼

Seamless Tubes.

	Feb. 19	Feb. 26
High brass	25	25½
Low brass	27	27¾
Commercial bronze ...	28	28¾
Copper	26¾	27½

NICKEL SILVER.

	Feb. 19	Feb. 26
10% grade A sheet metal	27¼	27¾
15% " " " "	28¾	29¼
18% " " " "	29¾	30¼
25% " " " "	40	40¼
5% wire and rod	27¼	27¾
10% " " "	30¼	30¾
12% " " "	31¾	32¼
15% " " "	33¾	34
18% " " "	36¾	37

current orders but the manufacturing position was not improved because at the close of February, as at the close of January, wire drawers and rolling mills were still from six to eight weeks in arrears in shipments against contracts.

Hardware manufacturers were prominent as buyers of bronze as well as of brass. Spinners placed additional orders for brass and copper sheets, and building industries increased orders for brass tubing. Railroads as well as railroad equipment manufacturers increased purchases of both copper and brass products for repair work.

Export Orders Small.

Foreign orders for copper and brass, including wire and rolled products, increased but very little in February although there were numerous inquiries from South America as well as from European countries. As prices advanced sharply during the second half of the month, tardy foreign buyers were hopelessly out of the running. The hydro-electric projects in Brazil failed to develop into business, unless the orders went to Europe.

TIN IN FEBRUARY

The tin market during February was very interesting and at times very exciting, the London market through very large speculative trading being the leader and the main stimulus to the drastic advance which took place during the month. Opening at 40.12½c for Straits the market had reached 41.50c by the middle of the month, followed by an advance virtually every day until the month closed at 46.62½c. The London market opened at £186 2s 6d and reached £191 by the middle of the month and during the last part of the month advanced to £217. In other words, an advance took place during the month of February of 4.50c per pound in New York and £31 in London, an upward movement which has not been experienced in any month since January 1920 when the market advanced 3.75c per pound from 60.25c to 64.00c per pound; but which later collapsed under the general inflation smash later in that year to 32.50c.

The present advance in tin, however, is on very much sounder grounds, because while it has been exaggerated in speculative operations in London, and intensified by the covering of short accounts and options that have been maturing in London, "right to double," "right to call," etc., etc., still there has been a sound foundation for the improvement in price, and it is found in the great uplift of the business situation in America during the past few months. This has been particularly demonstrated in the increased demand from the tin plate and automobile trade and other lines that use tin as one of their raw materials. It has been demonstrated that following the smash in prices in 1920, a vacuum had developed in the stocks and held back requirements of the country, especially in metals, and vacuums have a way of going out with a bang. We certainly have had an explosion in demand and activity in all non-ferrous metals and all other commodities, and pig tin being the most speculative of metals has shown the biggest advance.

The speculative movement in London is based on an extremely favorable and heavy American consumption. During the past few months there has been heavy buying by our American consumers, and while consumers are now well supplied both with immediate requirements and with probable requirements for the next two months, and have been very reluctant buyers, still the speculation abroad has reached such tremendous proportions, and is so complicated in the maturing of short contracts which have been and will have to be covered at the best price, that it is impossible

TIN PRICES IN FEBRUARY

Day	New York Straits	New York 99%.	London Stand.	London Straits.	Singapore Straits.
			£ s. d.	£ s. d.	£ s. d.
1	40.12½	38.87½	183 17 6	186 2 6	189 0 0
2	39.87½	38.87½	183 2 6	185 7 6	189 15 0
5	40.00	38.87½	182 17 6	185 17 6	188 10 0
6	40.25	39.00	183 12 6	186 12 6	188 15 0
7	40.30	39.00	184 5 0	187 5 0	190 0 0
8	40.25	39.12½	184 5 0	187 5 0	190 10 0
9	40.50	39.25	184 15 0	188 0 0	190 10 0
12	Holiday		186 2 6	190 2 6	192 15 0
13	41.37½	40.25	186 15 0	190 15 0	194 0 0
14	41.00	40.00	186 7 6	190 12 6	193 5 0
15	41.50	40.37½	187 10 0	191 5 0	193 5 0
16	42.37½	41.25	191 0 0	197 0 0	194 15 0
19	42.87½	41.75	193 0 0	199 0 0	199 15 0
20	42.65	41.60	191 10 0	197 10 0	200 15 0
21	43.12½	41.87½	193 5 0	199 15 0	199 10 0
22	Holiday		197 15 0	204 15 0	201 10 0
23	44.62½	43.50	200 10 0	208 0 0	205 10 0
26	44.25	43.00	199 10 0	206 10 0	210 5 0
27	44.87½	43.37½	201 0 0	208 15 0	209 0 0
28	46.62½	45.50	209 5 0	217 0 0	212 0 0
High .	46.62½	45.50	209 5 0	217 0 0	212 0 0
Low .	39.87½	38.87½	182 17 6	185 7 6	188 10 0
Aver.	42.031	40.859	190 10 3	195 7 6	197 1 3

MONTHLY TIN STATISTICS

As published by the New York Metal Exchange in tons of 2,240 pounds:

	Feb. 1923.	Jan. 1923.	Feb. 1922.
Supplies—			
Straits	4,655	6,255	3,640
Australian	200	155	90
Banka and Billiton	1,564	1,307	240
Chinese	772	1,410	40
Standard	1,451	1,663	402
	8,642	10,790	4,412
Deliveries—			
U. K. all kinds	1,518	1,497	2,233
U. S. A. all kinds	6,185	6,625	3,235
Continent, all kinds	1,547	1,903	1,093
	9,250	10,025	6,561
Decrease in total visible supply	608	*765	2,149
Stocks—			
U. K. all kinds	6,420	7,185	7,460
U. S. A. all kinds	2,054	3,354	1,406
Continent, all kinds	2,463	2,372	4,874
	10,937	12,911	13,740
Afloat—			
U. K. all kinds	1,219	1,902	1,650
U. S. A. all kinds	11,541	10,095	9,322
Continent, all kinds	1,460	857	1,117
	14,220	12,854	12,089
Tot. visible supply	25,157	25,765	25,829

* Increase.

STRAITS TIN PRICES.

Average prices of Straits tin for prompt delivery in New York.

	1923.	1922.	1921.	1920.	1919.
Jan.	39.17	32.11	36.11	62.89	72.50
Feb.	42.03	30.82	32.47	60.00	72.00
Mar.	.....	29.17	28.85	61.99	71.75
April	.....	30.65	30.41	62.20	72.26
May	.....	30.97	32.52	55.07	71.94
June	.....	31.54	29.57	48.62	71.20
July	.....	31.82	27.69	49.37	70.39
Aug.	.....	32.43	26.40	47.69	63.78
Sept.	.....	32.40	26.73	44.62	55.81
Oct.	.....	34.64	27.74	40.64	55.62
Nov.	.....	36.72	29.02	37.02	54.17
Dec.	.....	37.68	32.49	34.15	55.06
Average	.....	32.58	30.00	50.36	65.54

Yearly Averages.

1919	65.54	1914	35.70
1918	86.80	1913	44.32
1917	61.65	1912	46.43
1916	43.48	1911	42.68
1915	38.66	1910	34.27

TIN DELIVERIES IN UNITED STATES

Monthly deliveries of tin in United States, exclusive of domestic refined tin, in tons of 2,240 pounds.

	†1923.	1922.	1921.	1920.	1919.
Jan.	6,625	4,275	1,555	3,910	1,850
Feb.	6,185	3,215	1,585	5,200	2,450
Mar.	.....	6,030	1,683	5,130	2,070
April	.....	4,995	1,590	3,305	36
May	.....	4,740	1,225	3,550	20
June	.....	5,130	1,590	6,500	68
July	.....	4,590	1,525	5,530	132
Aug.	.....	4,150	3,320	3,745	4,345
Sept.	.....	5,050	2,605	4,860	4,825
Oct.	.....	5,603	2,280	3,415	2,875
Nov.	.....	4,812	3,250	3,395	6,665
Dec.	.....	4,870	3,710	2,580	6,965
Total	.....	57,460	25,918	51,120	32,301

VISIBLE SUPPLY OF TIN

World's visible supply of tin at end of each month in tons of 2,240 pounds.

	†1923.	1922.	1921.	1920.
Jan.	25,765	26,216	18,994	21,056
Feb	25,157	25,047	17,074	21,586
Mar.	.....	22,353	16,073	18,305
April	.....	22,017	15,670	19,342
May	.....	22,910	18,352	20,976
June	.....	23,566	17,968	18,851
July	.....	21,502	20,316	18,546
Aug.	.....	24,176*	19,358	19,858
Sept.	.....	22,879*	21,189	18,996
Oct.	.....	22,902	23,349	19,964
Nov.	.....	25,286	22,806	19,823
Dec.	.....	24,930	25,220	19,410
Average	.....	23,649	19,697	19,726

* Includes current shipments of Banka and Chinese to U. S.

Annual Averages.

1919	12,890	1914	14,907
1918	13,894	1913	12,377
1917	18,803	1912	13,207
1916	18,585	1911	16,404
1915	15,208	1910	18,815

TIN SHIPMENTS FROM STRAITS

(Tons of 2,240 lbs.)

	†1923.	1922.	1921.	1920.	1919.
Jan.	6,255	5,515	1,055	3,910	3,340
Feb.	4,655	3,640	240	4,810	2,860
Mar.	.....	4,985	915	2,795	2,254
April	.....	5,350	1,800	3,872	1,127
May	.....	6,420	3,667	4,930	1,704
June	.....	6,505	1,425	4,261	1,629
July	.....	4,035	3,975	3,865	7,302
Aug.	.....	5,855	3,165	3,798	8,829
Sept.	.....	4,050	5,300	4,529	5,465
Oct.	.....	5,650	4,525	3,340	4,431
Nov.	.....	6,145	4,065	2,630	4,135
Dec.	.....	4,635	5,920	2,225	6,677
Total	.....	62,785	36,052	44,965	49,763

Annual Totals

1918	*55,000	1914	63,093
1917	62,366	1913	62,550
1916	61,587	1912	59,318
1915	66,517	1911	55,470

† Note—London Metal Exchange statistics. * Estimated.

to form an opinion as to how high the market may be put. In the meanwhile, the bull parties in London are glutted with profits, and the traders here also have made very large profits and this makes for great courage in exploiting the situation. The tin market may be called a gambling proposition at present. There is nothing in the statistical position to justify the heavy advance during the month of February. The visible supply of tin for the world only decreased in February 680 tons to 25,157 tons, and this visible supply is only 100 tons less than last December 1st, and the price nearly 10.00c per pound higher in New York and £42 higher in London than the price ruling at that time. The surplus stocks which have been held so long by the Malay and Dutch Governments are about 14,000 tons and constitute a stock in addition to the 25,157 tons which existed on March 1st. After these stocks showing the Government enormous paper losses, the prices are now very close to the cost price plus interest and carrying charges, and the question that is now interesting the trade is when these Governments will take advantage of the situation to begin to liquidate their surplus stocks. There are no signs of it at present, but when they are sold, they will be sold very carefully and quietly, and probably in small lots so as not to affect the market. In the meanwhile sales and shipments from the East Indies will be carefully watched for signs of anything of the kind beginning.

LEAD PRICE CHANGES.

The American Smelting & Refining Company's changes in the base price of lead since the beginning of 1921 are given below:

1922—		Sept. 22	6.25
Opening	4.70	" 27	6.35
Mar. 30	4.80	Oct. 6	6.50
April 3	4.90	Nov. 1	6.75
" 7	5.00	" 2	7.00
" 20	5.10	" 24	7.10
" 24	5.25	Dec. 19	7.25
May 16	5.35	1923—	
" 18	5.50	Jan. 9	7.40
" 29	5.65	" 10	7.50
June 7	5.75	" 22	7.75
Aug. 21	5.90	" 23	8.00
Sept. 14	6.00		
" 19	6.10	Feb. 23	8.10

LEAD IN FEBRUARY

There was less price movement in lead during February than in the preceding months, but the course was still upward.

There was one change in the average contract price of the American Smelting & Refining Company, viz.: an advance on February 24th, of $2.00 per ton to 8.10c per pound New York.

The open market at the beginning of February stood at 8.15c East St. Louis basis and at the close was 8.30c to 8.35c.

Spot lead in the middle west was still in few hands, but producers were able to offer a fair tonnage in the general market for early shipment.

Arrivals of Mexican lead at New York somewhat relieved the stringent situation in this district but the amount was by no means large enough to cause a heavy condition. The foreign market gave signs at the end of the month of further strengthening, tending to check further imports hither at current market figures. London at the close of the month was £29 for prompt—£28 12s 6d for futures.

LEAD AND ZINC PRICES IN FEBRUARY

Day	——LEAD—— New York *	St.† Louis	London £ s d	——ZINC—— New York	St.§ Louis	London £ s d
1	8.00	8.25	8.15	28 5 0	7.40	7.05	35 17 6
2	8.00	8.15	8.12½	28 0 0	7.40	7.05	35 5 0
3	8.00	8.15	8.12½	.. .. ..	....	....	.. .. ..
5	8.00	8.20	8.17½	28 2 6	7.42½	7.07½	35 0 0
6	8.00	8.20	8.15	28 2 6	7.42½	7.07½	35 2 6
7	8.00	8.20	8.12½	28 2 6	7.40	7.05	34 17 6
8	8.00	8.20	8.12½	28 2 6	7.40	7.05	34 17 6
9	8.00	8.20	8.12½	28 5 0	7.40	7.05	34 15 0
10	8.00	8.20	8.12½	.. .. ..	....	....	.. .. ..
12	....	....	....	28 7 6	....	....	35 2 6
13	8.00	8.20	8.12½	28 7 6	7.50	7.15	35 2 6
14	8.00	8.20	8.15	28 7 6	7.55	7.20	35 5 0
15	8.00	8.20	8.15	28 5 0	7.55	7.20	35 2 6
16	8.00	8.20	8.15	28 5 0	7.60	7.25	35 12 6
17	8.00	8.20	8.15	.. .. ..	....	....	.. .. ..
19	8.00	8.20	8.15	28 5 0	7.65	7.30	35 15 0
20	8.00	8.20	8.15	28 7 6	7.67½	7.32½	36 0 0
21	8.00	8.20	8.15	28 10 0	7.72½	7.37½	35 17 6
22	....	....	....	29 5 0	....	....	35 17 6
23	8.10	8.20	8.15	29 7 6	7.80	7.45	36 2 6
24	8.10	8.20	8.15	.. .. ..	....	....	.. .. ..
26	8.10	8.30	8.25	29 7 6	7.87½	7.52½	36 10 0
27	8.10	8.30	8.25	29 7 6	7.97½	7.62½	37 0 0
28	8.10	8.30	8.27½	29 5 0	8.02½	7.67½	37 2 6
High	8.10	8.35	8.30	29 7 6	8.05	7.70	37 2 6
Low	8.00	8.10	8.10	28 0 0	7.40	7.05	34 15 0
Av.	8.022	8.211	8.16	28 10 4	7.60	7.25	35 12 3

* A. S. & R. price.
† Outside market. § Prime Western.

The consumption of lead in this country continued in the same enormous volume that has been seen for many months, with no present prospects of abating. Prominent manufacturers of lead products reported that their business for February was about equal to that of January, which surpassed all previous records.

LEAD PRICES, ST. LOUIS.

Average Prices, East St. Louis Basis.

	1923.	1922.	1921.	1920.	1919.
Jan. ...	7.64	4.40	4.78	8.32	5.36
Feb. ...	8.16	4.40	4.29	8.62	4.83
Mar. ...	....	4.43	4.03	8.93	5.01
April ..	....	4.97	4.30	8.71	4.87
May ...	....	5.30	4.82	8.52	4.80
June ...	....	5.58	4.34	8.36	5.06
July ...	....	5.45	4.28	8.58	5.42
Aug. ...	....	5.55	4.23	8.89	5.60
Sept. ..	....	5.90	4.41	8.23	5.81
Oct.	....	6.36	4.47	7.08	6.22
Nov. ...	....	6.88	4.38	6.16	6.68
Dec. ...	....	6.99	4.40	4.75	6.96
Year ...	....	5.52	4.39	7.93	5.55

Annual Averages

1918	7.25	1913	4.26
1917	8.92	1912	4.38
1916	6.80	1911	4.31
1915	4.57	1910	4.33
1914	3.74	1909	4.1[illegible]

ZINC IN FEBRUARY

During February the upward trend in the price of slab zinc continued with an advance of over ½c per pound, viz. from 7.05c East St. Louis basis for prime Western at the opening of the month to 7.67½c at the close.

The statistical statement for January proved even stronger than had been anticipated,—the shipments being no less than 47,995 tons. Of this total, 7,954 tons were for export, less than the export tonnage for December, but still a very impressive amount. Still more important were the large domestic shipments of 42,041 tons, giving evidence of increasing domestic consumption. The output for January, 46,317 tons, was 3,434 more than December, but 1,678 tons less than the January shipments, so that the stocks as of January 31st were further reduced by this amount to 16,574 tons of all grades.

still overtopped by the combined needs, domestic and foreign. The prospects point to continued large domestic consumption. The steel trade is extremely active, and galvanizing is naturally sharing in this activity. The brass trade also is very busy and promises continued and increasingly active conditions.

As to export, it becomes more and more likely that Europe will be obliged to draw on America for supplies for many months to come. The Belgian output seems incapable at present of rising above about 11,000 tons per month, especially with the adverse coal conditions brought about by the French occupation of the Ruhr district.

The immediate influence chiefly responsible for the rise in prices during February was large and steady export buying, domestic needs, though also considerable, having been mostly covered by previous purchases.

Zinc ore prices advanced during the month about $7.50 per ton, and advances in smeltermen's wages were also forced, labor being by no means too plentiful in any of the producing districts.

The freight embargoes and traffic delays during the month affected zinc in common with all commodities, causing great inconvenience and expense to shippers and consumers alike.

PRIME WESTERN ZINC PRICES.

Average Prices, East St. Louis Basis.

	1923	1922	1921	1920	1919	1918
Jan. .	6.96	4.71	5.44	9.22	7.12	7.71
Feb. .	7.25	4.50	4.95	8.82	6.37	7.73
Mar. .	....	4.65	4.73	8.62	6.18	7.42
Apr. .	....	4.91	4.75	8.26	6.16	6.81
May .	....	5.10	4.86	7.72	6.11	7.14
June .	....	5.35	4.44	7.58	6.57	7.85
July .	....	5.77	4.27	7.82	7.56	8.43
Aug. .	....	6.24	4.19	7.95	7.50	8.73
Sept. .	....	6.56	4.25	7.77	7.20	9.31
Oct. .	....	6.85	4.61	7.25	7.49	8.77
Nov. .	....	7.14	4.68	6.37	7.83	8.39
Dec. .	....	7.12	4.85	5.84	8.40	8.21
Av. ..	....	5.74	4.67	7.77	7.04	8.04

Annual Averages.

1917.....	8.93	1912.....	6.93
1916.....	13.57	1911.....	5.70
1915.....	14.16	1910.....	5.42
1914.....	5.11	1909.....	5.39
1913.....	5.61	1908.....	4.62

ROLLED ZINC IN 1922

The output of rolled zinc in the United States in 1922 gained 76% over that of 1921, as shown by replies made to the United States Geological Survey by producers. (Compiled by C. E. Siebenthal and A. Stoll.)

The market quotation on rolled zinc in mill lots at the rolling plants at the beginning of 1922 was 8.5 cents a pound, declining to 7.5 cents by the middle of the year and rising to 9.5 cents at the close of the year.

The large imports of sheet zinc which were a feature of the first half of 1921 were not repeated in 1922. In all, a little over 400 tons was imported in the first nine months of the year and none in October. The average declared value at the foreign mills was 7.1 cents a pound as compared with 3.7 cents a pound in 1921.

Rolled Zinc in the United States, 1921-1922.

	1921	1922
Sheet zinc not over one-tenth inch thick:		
Quantity .....pounds	28,580,904	50,193,463
Value	$2,844,406	$4,043,656
Average price per pound.....	$0.100	$0.081
Boiler plate and sheets over one-tenth inch thick:		
Quantity .....pounds	2,545,755	2,229,877
Value	$192,987	$155,074
Average price per pound.....	$0.076	$0.070
Strip and ribbon zinc:		
Quantity .....pounds	29,673,527	54,585,375
Value	$2,902,815	$4,346,347
Average price per pound.....	$0.098	$0.080
Total rolled zinc .....pounds	60,800,186	107,008,715
Total value	$5,940,208	$8,545,077
Average price per pound.....	$0.098	$0.080
Sheet zinc imported and entered for consumption:		
Quantity .....pounds	13,375,245a	830,835
Value	$496,445	$59,023
Declared value per pound at foreign mills.....	$0.037	$0.071
Rolled zinc exported:		
Quantity .....pounds	3,631,647	6,433,089
Value	$425,618	$574,491
Average price per pound.....	$0.117	$0.089
Available for consumption .....pounds	70,543,784	101,406,461

(a) Jan. 1st to Sept. 21st, incl.; no mports in October.

JOPLIN ZINC AND LEAD ORES.

Review for February 1923.

Market conditions for the month of February showed a steadily advancing market price of both zinc and lead ores. Shipments likewise showed increases throughout the month. Market range for zinc blende ran from $41.00 for the first week's average to $45.00 average for the last week of the month. The month's average was $42.55, covering a tonnage of 57,425 tons. This is an average shipment of 14,356 tons per week. Calamine ores were also strong and advanced from a minimum of $25.50 per ton for the first week of the month to an average of $29.00 for the last week in the month. This was an average of $27.53 covering a tonnage of 575 tons, or an average of 144 tons per week. The surplus zinc ore stocks at the end of the month were estimated at 75,000 tons.

A comparison of this month with February one year ago shows a remarkable change in market conditions. The total shipments for February, 1922 were 27,000 tons which compares with 57,425 tons. There were no shipments of calamine, while this year shows a shipment of 575 tons. The average price in February one year ago was $25.06 which compares with $42.55 this year.

Lead ores were equally as strong as zinc. The month opened at $105.00 per ton and closed at $114.00. The average for the month was $109.34. The shipments for the month were 7,077 tons, or an average of 1,770 per week. Price for lead ore one year ago was $60.00 per ton, but shipments this year are 800 tons below last year.

Production conditions continue to be excellent and barring some cold weather during the month and a continuance of the influenza epidemic, the mines had a very good month indeed. Announcements of further prospecting activities and the building of some new mills continue to be made as the Spring months open. Despite the activity sufficient labor has been coming into the district to take care of all demands, although the labor has not been as efficient as that prevailed in the industry one year ago.

U. S. ZINC STATISTICS.

From the monthly reports of the American Zinc Institute, in tons of 2,000 lbs.

	Production		Deliveries	
	1923.	1922.	1923.	1922.
Jan. ..	23,706	25,916	24,636	21,021
Jan. ..	46,317	23,706	47,995	24,636
Feb. ..	42,443	22,513	48,153	24,067
Mar. ..	.....	26,532	.....	30,394
April .	.....	25,506	.....	34,040
May ..	.....	27,419	.....	38,738
June ..	.....	28,547	.....	39,380
July ..	.....	31,917	.....	32,875
Aug. ..	.....	31,423	.....	38,412
Sept. ..	.....	33,134	.....	35,957
Oct. ..	.....	39,940	.....	40,703
Nov. ..	.....	40,200	.....	38,746
Dec. ..	.....	42,841	.....	44,086
Total		373,678	.....	422,034

	Stocks at Smelters*		Retorts In Operation*	
	1923.	1922.	1923.	1922.
Jan. ..	16,574	65,678	84,131	44.457
Feb. ..	10,864	64,124	86,931	43,357
Mar. ..	.....	60,262	.....	45,373
April .	.....	51,728	.....	42.7?3
May ..	.....	40,409	.....	48,765
June ..	.....	29,576	.....	52,677
July ..	.....	28,618	.....	54,909
Aug. ..	.....	21,629	.....	57,193
Sept. ..	.....	18,806	.....	65,936
Oct. ...	.....	18.043	.....	72,116
Nov. ..	.....	19,947	.....	75,664
Dec. ..	.....	18,252	.....	80,863

* At the end of month.

ALUMINUM IN FEBRUARY

Aluminum continued quiet but firm throughout February and today the market is firmer in tone but with a lack of vitality. The large American producer advanced prices about the middle of the month 1c to 1½c a pound and this fact was taken advantage of by importers and dealers here who also advanced prices. About the middle of February sales of 99% plus were made by importers of foreign aluminum at 24.00c to 25.00c a pound duty paid. In the open market there were sellers at 23.50c to 24.00c but a decidedly stronger tone developed toward the close of February and there was further strength early in March. Today importers are holding 99% plus at 26.00c and the open market at New York is almost as strong at 25.50c to 26.00c f.o.b. Remelted aluminum also advanced during the last month 1½c per pound, 98% to 99% remelted now being held at 23.50c to 24.00c and No. 12 alloy at 22.50c to 23.00c.

The local market is now very narrow and closely controlled with few if any offerings from abroad. It is stated it is impossible now to obtain prices on foreign aluminum for shipment before July 1st.

ALUMINUM, ANTIMONY, SILVER AND STERLING EXCHANGE QUOTATIONS IN FEBRUARY

Day	Aluminum	Antimony	Silver —— N. Y.	Silver —— London.	Sterling Exch.*
1	22.75	7.12½	.64¾	31¼	$4.66
2	22.75	7.12½	.64	30 13/16	4.67⅛
3	.....	....	.63¾	30 5/16	....
5	22.75	7.12½	.64	30 13/16	4.67½
6	22.75	7.12½	.64⅛	30¾	4.68
7	22.75	7.12½	.63¾	30⅝	4.67⅝
8	22.75	7.12½	.63⅝	30½	4.67⅛
9	22.75	7.12½	.64	30¾	4.67¾
10	.....	....	.63¾	30 11/16	....
12	.....	....	...	30 15/16	....
13	22.75	7.12½	.64	30¾	4.68¼
14	22.75	7.12½	.63⅞	30 11/16	4.68
15	22.75	7.12½	.63⅞	30⅝	4.68½
16	23.25	7.12½	.63⅞	30⅝	4.68⅝
17	.....	....	.63⅞	30 11/16	....
19	23.25	7.12½	.64⅛	30¾	4.70
20	23.25	7.12½	.64⅛	30 11/16	4.71¼
21	24.25	7.25	64⅜	30¾	4.71¾
22	.....	....	...	31	....
23	24.25	7.25	.64⅞	31	4.71⅝
24	.....	....	.64⅞	31	....
26	24.25	7.37½	.65⅜	31⅜	4.70⅜
27	24.25	7.37½	.66	31⅝	4.70⅝
28	24.25	7.75	.66⅜	31¾	4.70½
High	24.50	7.75	.66⅜	31¾	4.71¾
Low .	22.50	7.12½	.63⅝	30½	4.66
Aver.	23.25	7.20	64.33⅓	30⅞	....

ANTIMONY IN FEBRUARY

The market for antimony during February advanced sharply partly on improved consuming demand, but also on account of large specultive buying.

There was throughout the month great difficulty in obtaining firm offerings from China. The actual conditions there are notoriously hard to determine, but it would seem that the stocks there are not large, and pretty closely controlled, and there have been disturbances in the Chinese producing districts.

During the greater part of the month the leading importing interest abstained almost entirely from offering their spot stocks, and the price of spot antimony advanced from 7.12½c duty paid to 7.75c.

Shipment from China which in early February was quoted at inside 5.00c c.i.f. New York in bond, sold at the close of the month at 5.37½c.

Antimony at that price is still far below the other non-ferrous metals, and higher levels seem warranted. At the same time the consumption of antimony, unlike other metals, is not promoted by low price levels, depending solely on conditions of demand in the other metals with which it is used in combination. If, therefore, inflated prices induce increased output, readjustment to normal is less easy.

ANTIMONY PRICES.

Prices for Chinese and Japanese antimony (ordinary grades) in New York.

	1923	1922	1921	1920	1919	1918
Jan.	6.81	4.45	5.22	10.53	7.59	14.23
Feb.	7.20	4.38	5.23	11.55	7.24	13.67
Mar.	....	4.25	5.30	10.97	6.83	13.12
April	....	4.88	5.15	10.45	6.82	12.52
May	....	5.42	5.25	9.44	7.56	12.41
June	....	5.13	5.06	7.93	8.37	12.99
July	....	5.08	4.68	7.43	8.81	13.18
Aug.	....	5.29	4.55	7.04	8.92	13.81
Sept.	....	6.43	4.53	7.10	8.53	13.93
Oct.	....	6.80	4.94	6.62	8.60	13.44
Nov.	....	6.54	4.66	6.05	9.06	9.10
Dec.	....	6.35	4.51	5.46	9.56	8.19
Av.	....	5.42	4.92	8.38	8.16	12.55

Annual Averages

1917	20.73	1913	7.43
1916	25.33	1912	7.68
1915	29.52	1911	7.48
1914	8.53	1910	7.27

Highest Grade TRADE MARK H C T 99½%

ANTIMONY

Regulus H.T.C. Brand 99½%

Regulus S.G.C. Brand 99%

Crude S.G.C. Brand 70%

Antimony Ore

Chinese White Oxide of Antimony H. T. C. Brand 98% Minimum

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It cannot be said that conditions do not call for better prices, but Chinese costs are problematical, and will naturally affect the supply.

QUICKSILVER IN FEBRUARY

There is a moderate steady demand for relatively small lots of quicksilver for early shipment. In general the tendency of prices in the last few weeks has been downward but fluctuations have been narrow. The market today is $69 to $70 per flask with one dealer asking $70.50. On February 1st the bulk of sales were at $71. There is now and has been for several weeks a lack of large buying either for metal afloat or for spot. Most of the sales made to mercurial manufacturers, furriers and paint makers have been in lots of 1 to 5 flasks but there have been occasional sales of 25 flask lots.

Most all of the metal that was afloat from Europe has arrived and been applied against contracts. Today there is a lack of animation but prices are better sustained. The London market has fluctuated within narrow limits in the last month and at the beginning of March cables indicated a slightly easier tone at £10 5s or slightly under the price prevailing early in February.

ALUMINUM PRICES.

Open market quotations on virgin aluminum 98-99% pure, in New York.

	1923.	1922.	1921.	1920.	1919.
Jan. ...	22.75	17.74	22.86	32.00	33.10
Feb. ...	23.25	17.33	24.50	31.83	32.26
Mar. ...	.....	17.52	23.44	31.50	29.81
Apr. ...	.....	18.06	23.25	31.61	30.67
May ...	.....	17.92	23.06	31.95	32.21
June ...	.....	17.87	22.75	32.00	32.83
July ...	.....	17.87	22.62	32.00	32.57
Aug. ...	.....	17.87	20.22	32.21	32.23
Sept. ..	.....	18.26	19.02	31.44	32.50
Oct. ...	.....	20.51	17.85	29.12	32.50
Nov. ...	.....	21.66	17.50	27.80	32.50
Dec. ...	.....	22.52	17.50	23.83	32.48
Av.	.....	18.68	21.21	30.61	32.14

Annual Averages.

1918.....	33.60	1914.....	18.59
1917.....	51.25	1913.....	23.63
1916.....	60.73	1912.....	22.52
1915.....	34.1f	1911.....	20.34

PLATINUM IN FEBRUARY

The market for platinum has steadied some after sharp decline in prices last month as a result of freer offerings of both crude and refined metal. At the end of January the price of refined had advanced to $116 an ounce while crude was well sustained at $108 to $110 an ounce. In the last few weeks under freer offerings and less demand the price of soft refined dropped to as low as $105 an ounce but has since recovered to $107 to $110 an ounce. The retail or so-called official prices today are $110 for soft, $118 for medium and $126 for hard. Actual business, however, is being done at $108 to $110 for soft, $116 to $118 for medium and $124 to $126 for hard, refined.

Crude platinum also dropped under the influence of larger importations and freer offerings by domestic holders to $100 an ounce if not lower but today the market is firmer at $102 to $104 an ounce. Large refiners have been the principal buyers and today (March 7th) they are vitally interested in the offering of 1,200 ounces of refined by the U. S. Government. The unsettled condition of the market for both crude and refined in the last month has been reflected in unusually wide fluctuations in prices.

Manufacturing jewelers have bought some refined metal recently but as a whole their purchases have been disappointing to refiners. There has been some little increase in arrivals from Columbia, and a little more Russia product has come through London and the European Continent.

Palladium which advanced to $74.00 at the end of January and early February has since fluctuated between $72.00 and $79.00 an ounce. Iridium has remained quiet and largely nominal at $250 an ounce.

Steel and Metal DIGEST

VOL. 13 APRIL 1923 NO. 4

THE BUSINESS SITUATION

Business volume was large and traffic was heavy in March. Further progress was made in industrial recovery. The country has a sound basis for continued prosperity but there are some clouds on the business horizon, the most important of which is the increasing tendency toward inflation. This latter development, however, is partially offset by the increasing conservatism shown by business men generally.

It seems needless to enumerate again the signs of rising prosperity. They are too obvious to escape the attention of even the most casual observer. It may serve the best interest of all, however, to point out the pitfalls which may check the progress to better things commercially and financially and which are to be avoided if possible. There is a natur tendency in the human mind to exaggerate favorable conditions and, with increasing trade and rising prices, to be over-confident of the future.

Vice-president Roberts of the National City Bank at the recent meeting in Rome of the International Chamber of Commerce pointed out that "the industries of the United States today are busy practically to the limit of labor supply. Commodity prices have recovered from the abnormally low levels to which they had fallen in 1921 and both wages and prices are tending upward. A moderate degree of credit expansion has taken place in the last year and with the large gold reserves held by the banking system and the degree of confidence now being manifested in business circles, there is reason for apprehension that the country may be on the verge of credit and price inflation."

Industry Less Unbalanced.

There is less danger today from unbalanced industrial conditions as the agricultural situation has improved somewhat through better returns to the farmer from products sold, but advancing wages in some lines, notably in the textile and copper industries, may tend to obstruct an equable distribution of products in the not distant future. One favorable development, is that there is some evidence that labor is becoming more efficient.

The ideal industrial situation is one in which production is large and costs of output relatively low, permitting manufacturers to sell with a fair profit at relatively low prices, or at least at a level which encourages consumption. Wages, real wages, are measured by buying power in relation to purchases of the necessaries of life. In the last analysis wages depend upon production.

Production

Production of commodities in general today is heavy. This is as it should be and if costs of production can be kept at a level sufficiently low to encourage the maintenance of consumption at the present rate, labor will continue to be well employed at remunerative wages. The difficulty, however, is that the cost of production is rising almost as fast as selling prices and prices in some cases have already reached such high points as to check consumption. Thus far the rise of prices has been largely in raw material. It may be assumed, therefore that when these higher prices are passed on to the ultimate consumer in higher prices for manufactured goods through retailers there

will be a rebellion against the high level prevailing.

Reciprocity

It should be noted, that it is not so much the high level of prices generally prevailing at any time as it is the relative levels existing among various commodities, that is of greatest importance. There must be reciprocity and an equable exchange to make prosperity even relatively permanent. If prices of various commodities are fairly adjusted the buying power of each class of consumers would be adequate. For some time, returns to the farmers have not been in fair proportion to the income of workers in manufacturing and mercantile lines. The agriculturalists' position, however, has been improved in the last month by reason of an increase in foreign trade which has set prices for domestic business in food products and cotton. Heretofore it has been the farming situation which has been a brake on inflation but the brake is less effective today with a better industrial balance.

Inflation Avoided?

Fortunately leaders in finance, commerce and industry have taken to heart the economic warnings against inflation, and the conservative feeling that has been evident in business circles in the last month is having a wholesome influence now in restraining speculation in various commodities. This, apparently, has checked the upward tendency of prices somewhat and it is to be hoped that the check has come in time to prevent the development of a boom.

Trade Volume

The large volume of business in March is reflected in the checks passed through the principal clearing houses of the country amounting to $36,159,954,710, the largest monthly clearings since December 1920. It is shown that this total is 19% greater than in February this year and 12½% larger than in March 1922.

Heavy Traffic

Preparations making for continued heavy traffic on the railroads this year is expressive of the confidence of the carriers that present activity will continue during the next six months at least. It is pointed out by the American Railway Association that revenue car loadings so far this year have been the heaviest in American railway history, running about 15% above the corresponding period last year. Although the railroads bought more new equipment in 1922 than in the previous five years, there was a shortage of cars to meet shippers full requirements. More equipment is required and railroad executives expect to spend $1,100,000,000 this year for this purpose. Some of this financing has already been done and the probability is that scarcely more than half of this total will be raised during the current year.

Car Loadings

Car loadings in March gained substantially over those of February and the indication is that March rail earnings will show a decided improvement over those in February. In February it will be recalled that Class 1 railroads had an net operating income equivalent to only 3.73% on valuations of the properties against 5.54% in January and 4.67% in February last year. The March statement, however, is expected to show earnings at least as large as those in January and possibly larger.

This year the railroads contemplate increased traffic which will carry car loadings over the 1,000,000 weekly mark for thirteen weeks. If this is accomplished, it will be the maximum record in the history of railroad traffic. In 1922 there were only three weeks in which loadings reached 1,000,000 cars weekly, there were none in 1921 and only four 900,000-car weeks in that year, and in 1920, the year of maximum loading to date, there were only five weeks in which loadings passed the 1,000,000 car mark.

Railroad Equipment.

It is not surprising, under these circumstances, that the railroads called upon the equipment builders in the first quarter of this year for 71,000 cars and for 1,650 locomotives. To build this equipment the steel mills will furnish 1,000,000 tons of steel products. A large amount of railroad equipment, however, is still undelivered and with locomotive and railway shops sold to capacity for some months to come, fewer new orders from now on are to be expected. Including orders placed for rails, track supplies and repair work, as well as for cars and locomotives, the steel mills will be called upon to deliver to the railroads either directly or indirectly, not far from 2,000,000 tons of steel this year and this tonnage will be increased considerably

by later orders for rails. In 1922 the railroads' steel total purchases were not far from 5,000,000 tons.

Great Steel Output.

March activities of the steel mills were impressive but output of ingots last month, according to preliminary estimates, was slightly less than in March 1920. During the first quarter of 1923, the indication is that output of steel ingots was record-breaking, amounting to about 10,950,000 tons. In the first quarter of 1920 steel output was about 260,000 tons less. Output of pig iron in March was record-breaking, being at the rate of 42,500,000 tons a year. The heaviest production in any calendar year was 39,435,000 tons in 1916. The maximum production of steel ingots in a calendar year was 43,619,200 tons in 1917. Including castings, total production of steel in that year was in excess of 45,000,000 tons.

Less Buying.

It is notable that buying of steel products by all consumers was less in March than in February. The daily bookings of the subsidiary companies of the Steel Corporation last month averaged approximately 57,000 tons a day while in February the daily rate was nearly 65,000 tons a day. In the first quarter of this year Corporation orders aggregated about 4,560,000 tons, while in the first quarter of 1920 they were in excess of 5,177,000 tons. All returns, however, emphasize the wonderful activity of the steel industry in the first quarter of this year. In 1917 when the heaviest production was made, steel was going largely into the manufacture of war material. Today it is industries of peace—denied full satisfaction in war-time—that are calling for steel in greater tonnage than ever before and in excess of war needs.

Copper Industry.

Improvement in copper as well as in the steel industry is marked also by increased production as well as by heavy home consumption. The confidence entertained by producers, apparently, was well founded on previous heavy sales. March buying did not keep up the February rate and the advance was only ½c a pound, but probably it was to the best interest of both producers and consumers that the speculative rise was not further pushed. A monthly production of approximately 200,000,000 pounds seems ample to meet consumptive requirements at home and abroad for the time being. Industrial Europe is not in a position as yet to largely increase consumption of copper. If the current output of refiners can be disposed of over the remainder of this year at the present level of prices, the interest of producers as well as of consumers will be served best rather than by forcing a further advance and checking consumption.

Finished Copper.

Interest was centered more in wrought than unwrought copper in that prices of finished products were advanced ¾c to 17⅞c a pound against an advance in unwrought copper of ½c a pound. The falling off in demand for finished products in the last two weeks may be a warning that consumption has reached the saturation point for the time being. The finishing plants have capacity sold which will take up output for the next eight to ten weeks. Rising wages to labor, however, tend to increase the cost of production.

Building.

There is evidence that building needs throughout the country have not been fully satisfied but after sales of nearly 590,000 tons of fabricated steel for construction in the first quarter of this year, it would not be surprising if there should be a decrease of buying, at least, temporarily. The falling off, anticipated if it occurs, will be due probably as much to inability of structural mills and fabricating shops to make deliveries in time for construction before Winter, as to the higher prices prevailing for building material. A slowing down process may be expected except possibly in small residences where the owners are protected against high taxes in the next year.

Conclusion.

In conclusion, there seems to be reason for believing that activity will continue more or less in the next quarter of the year but with a tendency toward decrease in volume and probably a slow recession in price levels, unless, of course, there should be a sudden burst of enthusiasm which will blossom into speculation and bear the fruit of inflation.

THE OBSERVER'S CORNER

Did you ever reflect on the harm done by the repetition of certain familiar phrases, parading as wise observations on the currents in human affairs? There are some that cajole men into believing them to be true, or at least accepting them as true, whereby right thinking is discouraged.

The Observer does not refer to the host of maxims, adages and proverbs we have that are true when properly applied —and are thus helpful, but to phrases that pass simply because they have a good sound. We have many true and very useful sayings. Our Bible is full of such. Sometimes the Bible is quoted without men knowing it. "The Sabbath was made for man and not man for the Sabbath" is in the Gospels, but not everyone who repeats the quotation knows this. Some years ago "We are the people" was common, and everyone did not know that Job, after his three comforters had talked themselves out of breath, lifted up his voice and said: "No doubt but ye are the people, and wisdom will perish with you." Next we come to Shakespeare, who as everyone knows was not entirely original. He adapted old plays and clothed them with immortality, but he also drew from the Bible. One of the best sermons The Observer ever heard —by Dr. George W. Izer—was on Shakespeare's indebtedness to the Bible. Instance after instance was cited, in which Shakespeare's inspiration was obviously drawn from the book of books. Then we have Richelieu, which is distinctive among non-Shakespearean dramas in having furnished many quotations—"The pen is mightier than the sword"; "Its a wise son knows his own father"; "Oil and water, woman and a secret, are hostile elements" and the usually misquoted "In the bright lexicon of youth there's no such word as fail," as well as "Time is money" from another of Bulwer-Lytton's plays.

This may seem beside the subject announced, but the object is to distinguish between these useful maxims and those that are in danger of doing harm. Now, the human mind is so made up that frequently it lets things out and gives a plain clue to its workings. The sayings The Observer is objecting to are often called "catch phrases," and that gives the thing away. They are phrases that "catch" because it is easy to adopt them without thinking. They appeal to man's unconscious philosophy, which has a good bit of laziness in it. They give one a chance to appear "smart" without doing the amount of thinking really necessary to be smart. They sound good and people yield assent because it is the easiest thing to do. Both the speaker and the hearer pat themselves on the back and look wise.

The Observer is not going to attempt any list of these "catch phrases," so aptly named, but will confine his remarks to one: "History repeats itself." What a senseless, inane, vacuous, absurd, silly and altogether lying statement that is! Yet how often do men repeat it with smug complacency and feel comfortable over their apparent wisdom! It is a "catch" phrase.

Of course some events recur. There are so many events that it is impossible for them all to be different. Most events are not repeated or the repetition is so different in its bearing that it does not count. Just here there comes in very aptly a quotation that is used both ways, the right way and the wrong way, and is thus both a sound maxim, properly used, and a "catch phrase" improperly used. The difference arises from our word "prove" having more than one meaning. It may mean to establish or it may mean to try or test. The common expression is "The exception proves the rule." The real meaning is "The exception tests the rule," that is, if you are trying out something and find that all the cases in which it does not apply are obviously cases that have no real bearing, then the rule is good. Try "The average man does not climb a telegraph pole" and you find that drunk men and telegraph linemen frequently do, suggesting that the general rule is a good one, for drunk men and telegraph linemen are not average men. Some people, however, use "The exception proves the rule" by way of hunting up any exception and claiming that the exception—no matter what—lends force to the rule. According to that notion, if in the history of the world a telegraph pole had never been climbed

then the rule that the average man does not climb a telegraph pole would be incorrect. They use the thing as a catch phrase and say that there is no rule that does not have exceptions, which is just a plain lie.

The bearing of this reference to "the exception tests the rule" is that the repetition of events in history does not prove a rule, the repetitions being really exceptional or unusual. They are not the normal but the abnormal, or one has to strain a point to make it that there is really a repetition. The repetition is often fanciful rather than practical, and men are disposed to call it history repeating itself because it sounds smart.

For a practical illustration, the average price of hammered bar iron in Philadelphia in 1794 was $77.50 per gross ton. Next year it was $82.50. Suppose one had said "history will repeat itself." In 1796 the average was $106.50. The wait for the old price would be growing a trifle tiresome, if one wanted to make money meanwhile by dealing in bar iron or making things out of bar iron for sale. History did "repeat itself," however, for in 1843, 49 years later, hammered bar iron again averaged $77.50. The repetition occurred, but two generations of business intervened.

Or, again, in 1864 the United States made 1,014,282 tons of pig iron. There was no repetition, for we had never made a million tons in a year before. What will it profit a man to believe that some time in future we are going to make one million tons only of pig iron in a year?

Again, in 1886 we imported 154,099 net tons of steel rails, and 1,337,617 net tons of all iron and steel. Are we going to do that again? In 1887 we had an increase of 12,878 miles in the railroad mileage of the country. Is anybody going to increase his happiness or improve his position in society by believing we are going to have that experience again?

This "history repeats itself" is merely a catch phrase. We know perfectly well that the world is moving and it is exceptional for the same thing to occur again. All we can really mean by it is that, given identical conditions in all respects, the same result will occur, but everybody knows that so well that there is nothing in it. It is extremely rare for conditions to be repeated precisely, but if they are, that is the remarkable thing, not that the same result occurs.

The business cyclists make much of the repetition of upward and downward swings in business. Such studies are very useful provided they do not obscure vision of the current actual facts. It is much more important to know how much stock of pig iron there is, what is the rate of production and what is the rate of consumption, than it is to know that it is three years, four months and 23 days since pig iron prices last reached their top, and that a statistical study shows that during the last half century there have been, all told, just enough ups and downs in the pig iron market to make the "average" period three years, four months and 23 days.

Canadians Want Home Market Improved—"According to his annual report the president of the Welland board of trade views the past three years with considerable satisfaction in spite of industrial depression," says **Canadian Machinery.** "Several new companies were located there, and in a measure offset the inactivity that developed in other plants. Decrease in population of Welland is made a basis for the observation that more than two million people have left Canada between 1911 and 1921, and most of these went to the United States. Many of them were highly paid industrial employees, and one remedy emphasized by the president was immediate action looking to the soundest and quickest possible development of industrial life in that district. This would retain young people who are being educated at great expense but finally enter competitive industries in another country. Not alone from Welland but from other industrial centers come reports that industry is facing a shortage of skilled mechanics. Two remedies are suggested—that of immigration and that of speeding up industrial activity so as to make the home field attractive. The report on the industrial condition in the Niagara district would warrant the feeling that an improvement has set in, and that employment will shortly become as attractive in Canada as it is in other countries."

UNITED STATES STEEL CORPORATION

Extracts From the Twenty-First Annual Report of The United States Steel Corporation for the Calendar Year 1922

GROSS RECEIPTS—Gross Sales and Earnings		$1,092,697,772.36
Operating Charges, viz.:		
Manufacturing and Producing Cost and operating Expenses, including ordinary maintenance and repairs and provisional charges by subsidiary companies for depreciation	$959,973,966.88	
Administrative, Selling and General Expenses (not including general expenses of transportation companies)	30,331,295.78	
Taxes (including reserve for Federal income taxes)	35,798,449.97	
Commercial Discount and Interest	6,854,030.13	
	$1,032,957,742.76	
Less, Amount included in above charges for allowances for depletion and depreciation here deducted for purpose of showing same in separate item charge, as see below	33,382,624.09	
		999,575,118.67
Balance		$93,122,653.69
Sundry Net Manufacturing and Operating Gains and Losses, including idle plant expenes, royalties received, etc.	$3,232,606.13	
Rentals Received	921,564.67	
		4,154,170.80
Total Net Manufacturing, Producing a Operating Income before deducting provisional charges for depreciation		$97,276,824.49
OTHER INCOME AND CHARGES		
Net Profits of properties owned, but whose operations (gross revenue, cost of product, expenses, etc.) are not classified in this statement	$198,569.72	
Income from sundry investments and interest on deposits, etc.	13,493,163.37	
		13,691,733.09
Balance		$110,968,557.58
Less, Net balance of Profits earned by subsidiary companies on sales made and service rendered account of materials on hand at close of year in purchasing companies' inventories and which profits have not yet been realized in cash from the standpoint of a combined statement of the business of all companies		1,179,641.26
Total Earnings in the Year 1922 per Income Account, page 31		$109,788,916.32
Less, Interest Charges on Subsidiary Companies' Bonds and Mortgages		8,259,605.93

Balance of Earnings for the year before deducting provisional charges for depreciation		$101,529,310.39
Less, Charges and Allowances for Depletion and Depreciation, viz.:		
By Subsidiary Companies	$33,382,624.09	
By U. S. Steel Corporation	9,305,884.70	
		42,688,508.79
Net Income in the year 1922		58,840,801.60

The steel industry in the United States in the year 1922 showed a substantial recovery from the unusually low volume of 1921, both in respect of new business offered and production output. The aggregate tonnage of orders booked by the subsidiary companies of the Corporation during the year was slightly over 90% of their estimated maximum annual capacity. But the greater part of this tonnage was entered during the second six months of the year, when, owing to the extended strike at the coal mines and of the railroad shopmen, operations were conducted under difficulties. As a result the output of the steel making subsidiary companies for the entire year averaged only 71.3% of their capacity, exceeding materially, however, the output in 1921, in which year the average was 47.5% of capacity. During the first quarter of 1922 the output was but 57% of capacity. The interruptions in operations caused by the strikes mentioned, as well as the increased cost of coal, together with an increase of about 20% in wage rates effective on September 1st, resulted in increasing costs of operation to an extent which was not balanced by the slight advances which took place in selling prices during the year. Consequently the earnings for the year as shown by this report were relatively small for the volume of operations conducted and were not commensurate with the investment employed. At the close of 1922 the tonnage of unfilled orders of the subsidiary companies for the various classes of steel products was 6,745,703 tons in comparison with 4,268,414 tons at the close of the preceding year. Up to the date of the writing of this report the new business booked in 1923 has exceeded the rated maximum capacity of the subsidiary companies. There has also been some improvement in the selling prices secured.

PRODUCTION.

The total production during the year 1922, in comparison with results for the preceding year, of basic raw materials and of semi-finished and rolled steel and other products for sale, was:

	1922	1921	Increase	
	Tons	Tons	Tons	Per cent
Iron and manganese ore mined	21,778,179	16,647,881	5,130,298	30.8
Limestone quarried	5,633,186	4,607,486	1,025,700	22.3
Coal mined: For use in making coke	16,778,413	14,546,103	2,232,310	15.3
For steam, gas and other purposes	6,515,058	7,081,836	566,778	8.0 dec.
	23,293,471	21,627,939	1,665,532	7.7
Coke manufactured	13,237,058	9,825,264	3,411,794	34.7
Pig iron, ferro and spiegel	12,027,163	8,678,262	3,348,901	38.6
Steel ingots (Bessemer and open hearth)	16,082,385	10,966,347	5,116,038	46.7
Rolled and other finished steel products for sale	11,785,331	7,860,334	3,924,997	49.9
(For classification see page 15)				
	Bbls.	Bbls.	Bbls.	
Universal Portland cement	13,168,000	12,499,000	669,000	5.4

SHIPMENTS.

The shipments of all classes of products in comparison with shipments during the preceding year were as follows:

Domestic Shipments.	1922 Tons	1921 Tons	Increase Tons	Increase Per cent.
Rolled steel and other finished products	10,708,022	6,832,038	3,875,984	56.73
Pig iron, ingots, ferro and scrap	273,963	142,715	131,248	91.97
Iron ore, coal and coke	740,380	618,729	121,651	19.66
Sundry materials and by-products	109,082	103,265	5,817	5.63
Total tons all kinds of materials, except cement	11,831,447	7,696,747	4,134,700	53.72
Universal Portland cement (bbls.)	13,548,544	12,211,285	1,337,259	10.95
Export Shipments.				
Rolled steel and other finished products	1,203,882	1,126,795	77,087	6.84
Pig iron, ferro and scrap	3,377	978	2,399	245.30
Sundry materials and by-products	90,894	80,384	10,510	13.07
Total tons all kinds of materials	1,298,153	1,208,157	89,996	7.45
Aggregate tonnage of rolled steel and other finished products shipped to both domestic and export trade	11,911,904	7,958,833	3,953,071	49.67

TOTAL VALUE OF BUSINESS (covering all of above shipments, including cement and completed steamships delivered and other business not measured by the ton unit)	1922	1921	Increase or Decrease Amount	Increase or Decrease Per cent.
Domestic (not including inter-company sales)	$646,592,293	$563,093,812	$83,498,481	14.83 inc.
Export	75,311,489	92,313,756	17,002,267	18.42 dec.
Total	$721,903,782	$655,407,568	$66,496,214	10.15 inc.

The prices received in 1922 for the total tonnage of rolled and other finished steel products shipped, netted in respect of domestic shipments $13.52 per ton less than the average price received per ton for an equivalent tonnage of similar products respectively shipped in 1921; and in respect of export shipments there were received $19.70 per ton less than the average price obtained in the preceding year.

The expenditures made during the year for general maintenance and upkeep of the properties, and the further provisional allowances for depletion of minerals and accruing deterioration and obsolescence of improvements, equipment and facilities, in comparison with similar expenditures and charges in 1921, were as follows: (See next page).

CLASSIFICATION OF PRODUCTION

of Raw, Semi-Finished and Finished Products by Subsidiary Companies in the Years 1922 and 1921.

Products	1922	1921	1922 Increase	
ORES MINED				
In the Lake Superior Region (iron ore)	Tons	Tons	Tons	Per cent.
Missabe and Vermilion Ranges	16,549,588	12,065,390	4,484,198	37.2
Gogebic, Menominee and Marquette Ranges	2,477,672	2,415,802	61,870	2.6
In the Southern Region—Alabama (iron ore)	2,545,242	1,941,490	603,752	31.1
In Brazil, S. A. (manganese ore)	205,677	225,199	19,522*	8.7*
Total	21,778,179	16,647,881	5,130,298	30.8
LIMESTONE QUARRIED	5,633,186	4,607,486	1,025,700	22.3
COAL MINED				
For use in the manufacture of coke	16,778,413	14,546,103	2,232,310	15.3
For steam, gas and all other purposes	6,515,058	7,081,836	566,778*	8.0*
Total	23,293,471	21,627,939	1,665,532	7.7
COKE MANUFACTURED				
In bee-hive ovens	3,431,846	1,698,178	1,733,668	102.1
In by-product ovens	9,805,212	8,127,086	1,678,126	20.6
Total	13,237,058	9,825,264	3,411,794	34.7
BLAST FURNACE PRODUCTION				
Pig iron	11,885,179	8,547,199	3,337,980	39.1
Spiegel, ferromanganese and ferro-silicon	141,984	131,063	10,921	8.3
Total	12,027,163	8,678,262	3,348,901	38.6
STEEL INGOT PRODUCTION				
Bessemer ingots	4,068,578	2,950,897	1,117,681	37.9
Open hearth ingots	12,013,807	8,015,450	3,998,357	49.9
Total	16,082,385	10,966,347	5,116,038	46.7
ROLLED AND OTHER FINISHED STEEL PRODUCTS FOR SALE				
Steel rails (heavy and light tee and girder)	1,225,999	1,480,049	254,050*	17.2*
Blooms, billets, slabs, sheet and tin-plate bars	673,099	409,767	263,332	64.3
Plates	1,410,414	723,355	687,059	95.0
Heavy structural shapes	936,733	439,762	496,971	113.0
Merchant bars, hoops, skelp, light shapes, etc.	2,456,915	1,125,961	1,330,954	118.2
Tubing and pipe	1,178,611	984,285	194,326	19.7
Wire rods	158,495	88,232	70,263	79.6
Wire and wire products	1,404,663	915,651	489,012	53.4

ROLLED AND OTHER FINISHED STEEL PRODUCTS FOR SALE	1922 Tons	1921 Tons	1922 Increase Tons	Per cent.
Sheets (black and galvanized) and tinplates	1,504,121	1,024,542	479,579	46.8
Finished structural work	301,248	272,621	28,627	10.5
Angle splice bars and all other rail joints	218,538	198,397	20,141	10.2
Spikes, bolts, nuts and rivets	72,531	60,291	12,240	20.3
Axles	96,403	22,567	73,836	327.2
Steel car wheels	78,247	35,101	43,146	122.9
Sundry steel and iron products	69,314	79,753	10,439*	13.1*
Total	11,785,331	7,860,334	3,924,997	49.9
MISCELLANEOUS PRODUCTS				
Zinc	59,818	33,426	26,392	79.0
Sulphate of Iron	32,389	24,499	7,890	32.2
Fertilizer—"Duplex Basic Phosphate"	16,513	14,528	1,985	13.7
Fertilizer—Sulphate of Ammonia	123,118	117,496	5,622	4.8
Ammonia (as liquor)	3,816	3,620	196	5.4
Benzol products	119,373	113,354	6,019	5.3
	Bbls.	Bbls.	Bbls.	
Universal Portland cement	13,168,000	12,499,000	669,000	5.4

* Decrease.

INVENTORIES

Of Manufacturing and Operating Materials and Supplies and Semi-Finished and Finished Products, Including Net Advances on Contract Work, Etc.

The net book valuation of the inventories of the above classes of assets for all the subsidiary companies equalled at December 31, 1922, the sum of $220,707,-251, a decrease of $20,797,118 in comparison with the total at close of preceding year. The valuation as stated is the net after allowing credit for a reserve of $49,460,082 set aside from earnings of previous years to absorb deflation in value from war period prices which may from time to time develop in respect of inventory items.

Inventory values, before allowing for credit for reserve above mentioned, are on the basis of the actual purchase or production cost of the materials to the respective subsidiary companies holding the same (unless such cost was above the market value on December 31, 1922, in which case the market price was used) except that in respect of such commodities in stock at the close of the year as had been purchased by one subsidiary company from another there has been excluded approximate amount of profits in such sales price which had accrued to the subsidiaries selling the same or furnishing service in connection therewith. These profits are not carried into the currently reported earnings of the consolidated organization until converted into cash or a cash asset to it. Accordingly, in the combined assets for all of the companies the inventories of those materials and products on hand which have been transferred and sold from one subsidiary company to another, are carried at net values which include no inter-company profits accruing to any subsidiary company in connection with the sale of materials to another subsidiary.

The following is a general classification of the inventory valuations at December 31, 1922, in comparison with the valuations at the close of the preceding year:

		December 31, 1922.	1921.
Ores—Iron, manganese and zinc		$76,275,064	$84,725,188
Limestone, fluxes and refractories		5,091,428	4,440,739
Coal, coke and other fuel		10,807,030	13,054,195
Pig iron, scrap, ferro and spiegel		12,374,219	18,869,057
Pig tin, lead, spelter, copper, nickel, aluminum and dross and skimmings		8,288,502	7,714,557
Rolls, molds, stools, annealing boxes, etc.		11,591,006	13,123,821
Ingots—steel		2,533,616	1,573,879
Blooms, billets, slabs, sheet and tin plate bars, etc.		16,283,993	22,782,293
Wire rods		1,499,913	1,363,220
Skelp		1,588,148	1,785,049
Finished products		47,619,421	56,599,667
Manufacturing supplies, stores and sundry items not otherwise classified		35,578,946	37,050,148
Mining supplies and stores (for ore and coal properties)		7,256,390	7,291,199
Railroad supplies and stores		6,210,753	7,953,241
Merchandise of supply companies		1,818,297	1,363,816
Material, labor and expense locked up in uncompleted bridge, structural and other contract work	$26,638,598		
Less bills rendered on account	21,097,612		
		5,540,986	1,024,532
Stocks abroad and on consignment		12,940,727	17,260,930
Material in transit		6,868,594	4,239,093
Total		$270,167,333	$302,214,624
Less, inventory reserve		49,460,082	60,710,255
Balance		$220,707,251	$241,504,369

EMPLOYES AND PAY ROLLS.

The average number of employes in the service of all companies during the year, and the total salaries and wages paid in comparison with corresponding results for the preceding year, were as follows:

Employes of	Number. 1922.	Number. 1921.
Manufacturing properties	150,847	133,963
Coal and coke properties	26,856	22,451
Iron ore properties	11,906	11,183
Transportation properties	21,523	20,010
Miscellaneous properties	3,799	4,093
Total	214,931	191,700
Total salaries and wages paid	$322,678,130	$332,887,505
Average Earnings per Employe per day for Year:		
All employes, exclusive of general administrative and selling force	$4.78	$5.61
Total employes, including general administrative and selling force	$4.91	$5.73
Average Earnings per Employe per Day in Months of December 1922 and 1921	$5.59	$4.60

TOPICAL TALKS ON IRON

CXIX- Distribution of Steel

Talk No. 103, in the issue of December, 1921, had for its caption "Analysis of steel consumption," the talk proceeding along the line that demand for some kinds of steel products depends more upon industrial conditions than does demand for other products. To illustrate, it was pointed out that in times of slack business the demand for steel for railroad bridges is light while the use of tin plate in packing tomatoes is likely to be heavy. Some times in periods of great industrial activity tomatoes have rotted on the ground because labor could not be secured. Hence, the talk proceeded, it is awkward to add tin plate for tomato cans to steel for railroad bridges and other things and call the total a "barometer of trade."

In recent years there has been some effort made to analyze the distribution of steel, i.e., to determine how much steel goes into this line of consumption and how much into that. It is doubtful whether there has been much disposition to study the subject exhaustively from an economic or business standpoint. An individual steel producing interest is likely to consider the matter from its own position as a producer, to see what "share" of the business its sales department is securing. Writers for the trade press have shown a disposition to make their articles interesting rather than useful. Some prominent steel men have insisted that no analysis can be particularly useful, contending that steel is either plentiful or scarce, and that when it is scarce it is generaly possible to put it into those particular forms that buyers call for. That is, that it is quite unlikely for there to be a condition when there is plenty of tin plate but not enough nails, or plenty of plate to make oil storage tanks and not enough hoops to make barrels.

Some analyses that have been made of the steel distribution show a tendency to cling to classification by description of steel rather than to make the classification entirely by buyers. If it is true, as claimed in some quarters, that the possibility is remote of there being plenty of one form of steel and a scarcity in another form of steel, then the chief business advantage of analyzing steel distribution, ignoring the matter of merely presenting something of passing interest, would be to have a classification by the lines of human endeavor whose activities can be gauged separately. That is, if we have separate statistics suggesting how much activity there is, individually, in dwelling house construction, public service company extensions, railroad improvement, oil field development, and so on, it would be advantageous to know how many tons of steel these various lines of endeavor require at various stages of activity. As a matter of fact, the Department of Commerce has lately been publishing considerable statistical information along such lines, showing, just for illustration, the respective activity in business buildings, industrial buildings, residential buildings, educational buildings and hospitals and institutions. Obviously it would be a practical advantage to know the difference, in demand for steel, between the expenditure of $10,000,000 on residences and on industrial buildings respectively.

Analyses of steel distribution have not been made in such a way that the items can be related to statistics of business activity along this line. One analysis, for instance, shows the lump proportion of steel that goes for "oil, gas, water and mining." Now oil and water do not mix. There may be one stage of activity in the petroleum industry and a totally different stage of activity in water or in mining.

Still less known is the geographical distribution of steel demand. The trade papers are frequently asked questions as to what is the consumption in a given state or group of states of this steel product or that. Nothing like satisfactory answers can be given to such questions. It is entirely a mystery how much steel "the south" consumes, or how much of any particular product, except cotton ties. Obviously it would be advantageous both to steel producers and their customers to have some sort of an idea how the total of steel, and the different steel products, are distributed geographically. Often one can say that the south or the west is prosperous

and it would be useful to know what that means in terms of tons of steel demand.

Some men have said that such studies are impossible because demand from different sections or different industries or for different products, varies so widely It is for that very reason that such studies would be particularly useful. If a given part of the demand can vary widely so can all parts. If they vary in rhythm there must be great ups and downs in the total. If they vary out of tune the total demand may vary little. Surely it would be good to know more about these things.

SECRETARY HOOVER ON EXPORTS OF MACHINERY

Writing for **Industrial Management**, Mr. Herbert Hoover says among other things:

"In 1910 the United States exported $51,000,000 worth of industrial machinery; in 1921 this trade had expanded to more than $246,000,000, a growth typical of the importance of export trade to American business. Many of our machinery manufacturers export over 20% of their products, some of them as high as 60%."

The magazine editorially comments on the article as follows:

There are two broad economic problems of particular moment to all industrial executives at the present time. One of these is the situation in America with respect to the production, storage and distribution of coal. The other has to do with foreign demand for American machinery.

No man in America thinks more clearly on either subject than does Herbert Hoover, who in his three years as Secretary of Commerce has made the Department of Commerce a real, functioning, helpful institution recognized by American business men as a vital force for the upbuilding of American prosperity.

Mr. Hoover probably can see more clearly into the economic muddles confronting the world than can any other man today not merely because of his unusual mental ability, but because added to this has been an experience in economic world affairs that has hardly been paralleled. Take the combination of engineering training, superior mental ability, executive responsibility, first in private industry and later in world affairs and add to this a method of reasoning that is as precise as the operation of machinery — a mental process that operates solely and exclusively on facts, and you have the Hoover mental "complex" which stands as the authority back of his expressions.

This subject of machinery exports is truly of exceptional interest and importance to American industrial executives, particularly at this time. Economic conditions abroad are changing so rapidly, as are political relationships, that one has difficulty in following them. Yet these relationships determine purchasing power and must eventually affect our exports.

As Mr. Hoover points out, "the fundamental of mass production is a widely based market." American mass production requires a world market for its absorption. Hence the importance of obtaining as clear a picture of the relationships, the causes and effects underlying the laws of exchange as is possible.

Coal Mines to be Opened.—Important regulations affecting the bituminous coal mining industry are made by Director Bain of the United States Bureau of Mines in his annual report. He suggests that authority be obtained from the Interstate Commerce Commission to open new mines, public convenience and necessity being shown by the operator, on the ground that as the Commission has supervision over railways it should have some say as to increasing the transportation facilities. He believes that opening of unneeded mines should be stopped for a while, or at least the rate of opening be decreased so as to adjust mine capacity to current needs. He recommends storage of coal by the consumer or some distributing agency operating between him and the mines. He advocates storage of large quantities of coal in the ground at mines, and other storage.—**American Industries.**

TECHNICAL AND COMMERCIAL ABSTRACTS

Railroad Records Being Broken.—"Traffic conditions as a whole are typified by an official statement of the Pennsylvania Railroad that all records for the total volume of freight in the corresponding period of any previous year have been broken week after week since the beginning of the year, and that this record-breaking movement reflects the demands and needs of shippers, which are unprecedented for the season," says the **Railway Review.** "Both east and west the efforts of railroad managers have been concentrated upon moving the maximum amount of freight possible with the facilities available. Open weather, favorable to railway operation, has prevailed lately in the Chicago district, but heavy snows and severe cold have curtailed the heavy lumber movement from the Pacific northwest that has been a feature of the last few weeks. The eastern car situation has been relieved, and car supply is now generally satisfactory, while the embargoes caused by accumulations of freight at Detroit, Toledo and several eastern points are gradually being cancelled."

IRON AND STEEL

Nickel-Bearing Steels Are Standard.—The use of nickel steel in the automotive industry has been so broad, and experience with it has extended over such a long period, dating back to the infancy of the industry itself, that the compositions used have become well standardized both by users and steel manufacturers. Specifications are published both by the Society of Automotive Engineers and by the American Society for Testing Materials, covering grades of nickel-bearing steels used in the automotive industry. In consequence, nickel steels are readily secured, even on short notice, as they are produced by all alloy steel mills who consider the 3½% nickel and low-chrome nickel steels as standard heats. They are carried as standard stock by many of the steel warehouses and large drop forge companies. The ease with which these standard steels may be secured has often prevented serious tying up of large production.—**The Blast Furnace and Steel Plant.**

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Boom in Steel Barge Building.—"The Jones & Laughlin Steel Corporation, which inaugurated delivery of its manufactured products in steel barges on the Ohio and Mississippi rivers two years ago, will expend about $1,000,000 during the current year for new equipment and terminals, especially designed for this service," says the **Iron Age.** "Work is already under way in the Jones & Laughlin boat yard in Pittsburgh on the construction of 21 new type steel barges for the service, to cost approximately $300,000. A new oil engine harbor steamboat for handling barge movements between the Pittsburgh and Aliquippa works of the company has been ordered, at a cost of $45,000. Two new all-steel steamboats designed for towing service in the Ohio and Mississippi rivers have been designed, and will shortly be ordered at a cost of $300,000. New river and rail terminals at the Pittsburgh works on the Monongahela river, and at the Aliquippa plant on the Ohio river, have been designed, and will be constructed during the Spring and Summer, at a cost of about $350,000."

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Sulphur Removal Tedious Process—"Considerable interest has been aroused by the report from Germany that a method of reducing the sulphur content of iron by using a ladle addition has been found," says **The Foundry.** "While patents have been secured on the mixture used, the essential points have been obscured as much as possible, but it appears that the main ingredients are the alkalies with salts of one or more of the alkaline earths, either calcium or barium, more probably the latter. From what is known of the operation of this process it can be concluded that it is effective in removing sulphur from the iron in the ladle to a considerable extent. However, it has drawbacks which are more serious in this country than they would be in European foundries. The mixture must be added in the bottom of the ladle, and then as the melted iron is run in on top of it the flux gets in touch with the entire body of iron and absorbs, not only a portion of the sulphur, but, what is more important, it is said to free the metal of a large percentage of the gas it contains as it comes from the cupola. Removal of sulphur and gases would be of a great

advantage, but would the American foundryman go to the trouble of adding a flux to every ladle, especially when it is necessary to prevent slag entering the ladle with the iron and then to skim off the slag formed by the flux? Possibly in a few cases where the need of low sulphur is practically essential, the flux would be favored, but in general American foundrymen hesitate to adopt a method which requires more detail in the process."

Effect of Manganese on Steel—A method of preparing very pure iron has been developed at the Bureau of Standards, and with this iron as a base various commercial steels and other iron alloys have been made for the purpose of testing them without the complicating effect of impurities which are usually present in commercial iron and steel. The use of manganese as a strengthening agent in addition to the carbon is the subject with which the investigation was chiefly concerned. Manganese is also used as a deoxidizer and as a desulphurizer, but these uses are better understood. The general effect of manganese may be concisely described as a "restraining influence" so that the pearlite or carbon-bearing constituent of steel, even after annealing, exists in a very grained condition if considerable manganese is present. In this respect the steel resembles in structure the condition which usually obtains in similar steels of low manganese content after rather rapid cooling, for example air cooling, The mechanical properties of the annealed high manganese steel are quite similar to those obtained in the lower manganese steel by cooling it more quickly.—**American Machinist.**

Standard Thicknesses of Sheet Metal—Letter Circular 24, one of the mimeographed circulars of the Bureau of Standards, has just been issued, and gives standard thicknesses of sheet metals, including steel plate in sheets, galvanized sheets, copper, brass, aluminum, tin and terne, zinc and monel metal. The various sheet metal and wire gauges used in designating the thicknesses are also discussed. The circular is a collection into useful form of information that has heretofore been widely scattered an inaccessible.—**Power.**

Stainless Steel and Iron—Metallurgical progress in 1922 was satisfactory, and many developments of earlier discoveries have taken place. Non-rusting and stain-resisting alloys have received profound attention. Of such, stainless steel and iron are probably of greatest interest, reaching the public in the form of cutlery, household appliances, name plates, hearth furniture and such like, while for the motorists there are radiators, car fittings and adornments. Developments have proceeded to such an extent that cans, cutting tools, meat hooks, valves, engine parts, chemical appliances, all kinds of stampings and forgings are now being made. A big forward step is the casting of such material into a million and one forms which, after tempering and polishing, become for all ordinary purposes, perfectly stainless. The general interest, however, is not so strong in stainless steel, and its success as permanent resister of tarnish still requires proof. Much experimenting is taking place in many non-ferrous metals, and a very beautiful sterling silver alloy, which will not tarnish or stain, will shortly come onto the market. —**Foundry Trade Journal.**

Steel-Furniture Shipments Increasing.—Shipments of steel furniture stock goods by manufacturers showed continued growth throughout 1922, according to figures published by the Department of Commerce from a compilation by the Census Bureau, in cooperation with the National Association of Steel Furniture Manufacturers. The shipments in December, 1922, were the largest in over two years. January shipments were only 1% less than December, and amounted to $1,362,470. Statistics from twenty-two manufacturers, comprising practically the total output of steel-furniture stock goods, show that the year 1922, with total shipments of $12,928,026, was the second best year since the war, being exceeded only by the record $17,659,303 shipments of 1920. The largest shipments occurred in September, 1920, with a total of $1,730,393, while the lowest record was in June, 1919, at $690.855. There has been a steady increase each month since August 1922, in these shipments, which include sections, counters, office and vault verticals, safes and interiors, desks and tables and small miscellaneous articles, exclusive of shelving and lockers.

LABOR

Getting Men for the Machine Industry.—As predicted by the able economist who advises the National Machine Tool Builders' Association, a labor shortage has the machinery makers in its grip. The general public hears a lot about the shortage of unskilled labor, and it is up against the shortage of craftsmen in the building trades, but it knows little or nothing of the problem of getting and keeping good machinists that is constantly before employers in the machinery field. Even in dull times good machinists are none too numerous. Because of the uncertainties of the business they are apt to drift into more stable lines of work, even though they may not be so happy there as in the shop. When there is a call for their services it has been the experience of many employers that at least 10% of them cannot be induced to return. The only answer for the employer seems to us to be the establishment of training and apprentice schools. On the success of American employers in training them may depend the continuance of the wave of prosperity which is now sweeping over the country. If training in the plant is impossible, support should be given to a good school in the community.—**American Machinist.**

Labor Shortage Not Acute—Government officials in Washington who have come in contact with large employers say that as a general thing the shortage of labor is not acute. Regarding the continuance of the present high rate of production, it is the opinion of the officials that it can be maintained for at least two years, barring untoward developments. It is their attitude that some of the production, such as that required for general construction, including the building of homes and for meeting railroad requirements is being applied to the making up of shortage growing out of war conditions. Also, it is pointed out that some activity, especially in the agricultural export lines, is to meet European requirements. In any event, however, large production for an indefinite period in this country is expected, not only to meet the normal domestic business, but also to take care of new export markets that are being developed.—**Iron Age.**

An Industrial Need—Disclosures made by the Hoover Committee on the Elimination of Waste in Industry showed that poor eyesight among the workers was causing heavy annual economic losses. Surveys in numerous cities have revealed similar conditions of vision in the schools. To remedy this situation is a national duty, Secretary of Labor James J. Davis declares in a statement. "In my earlier life as a workman, and in the course of my duties as secretary of labor," he says, "I have come to know something of this problem, particularly in its relation to men and women in industry. It is a problem in human service, which in its solution will mean much to the whole service of America in life, economic prosperity and happiness. Sight is, paradoxically enough, the most highly prized and at the same time the most abused of the human senses. I am in formed that of the 40,000,000 or men men and women who are gainfully employed in the United States, upwards of 25,000,000 suffer from some form of defective vision which is capable of correction and, which should be corrected. This is an astounding number, and its reduction to a minimum would plainly better the condition of these sufferers, increase their efficiency in industry, and generally benefit the nation. Whatever can be done in the way of improving employment conditions in this respect will be of inestimable service to the man who labors."—**Industrial Management.**

Metal Miners Needed—Though the immigration figures show that the United States is absorbing an unusual number of skilled laborers from the Northern European countries, apparently no great number of metal miners are included in this influx. There is practically no opportunity of securing more men by increasing the wage level. Resort must be had to underground loading equipment and other devices to supplant labor.—**Engineering and Mining Journal-Press.**

FOREIGN.

Argentina's Iron and Steel Possibilities—"To an American familiar with Argentina it appears strange indeed that up to the present time so little has been accomplished in the development of a domestic iron and steel industry," says **The Blast Furnace and Steel Plant.**

"Contrary to what has taken place in many other countries, Argentina now has the industrial plant before securing a domestic supply of ore, because it must be remembered that scrap iron is only considered as a substitute. If we make exception of complicated machines and high tempered steels, which make up but a small portion of Argentina's imports, everything else can be manufactured in the country with Argentine iron ores, since an innumerable list of articles are now made through the use of scrap iron. Certainly the time is ripe in Argentina when a definite step forward in this important industry should be made, and we are convinced that American iron and steel manufacturers would do well to investigate the possibilities offered them for securing valuable concessions which will enable them to build up along the Platte River an iron and steel industry of great magnitude."

Manganese Ore Scarce in Great Britain—A matter of prime importance at the present time is the supply of manganese ore, which is still practically unprocurable, says the **Iron and Coal Trades Review** (London). The price is stated to be 1s 4½d to 1s 5d per unit. It has been many months since there was such a demand for this ore as that in evidence during the past few weeks. Germany, France and England are competing keenly for prompt as well as future shipment of Indian and Bazilian ore.

An American Industrial Policy—Although the loud demand that has been made in England from time to time for a Ministry of Commerce has not produced the desired result, the United States seems to have gone on something of the line intended by the advocates of our Ministry of Commerce, and with great success. The United States Department of Commerce, according to reports coming over, is working hand in hand with the industries of America to a very good purpose, and there has been introduced what is a new slogan in the form of the word "simplification" in industry. In a sense this is little more than standardization, and much of the work being done in this direction in the States has been in hand in this country for several years. But the fact is that by co-operation between the state and the industries in America a position has been reached which, without in any way involving state assistance financially or in the matter of control, has enabled a great deal more progress to be made than will ever be possible here under our present conditions. It does not only concern methods of manufacture, but methods right through to the consumer, and includes distribution, which deserves a great deal more attention than it often receives here.—British Correspondence to **The Blast Furnace and Steel Plant.**

High Points in British Steel Industry—"The rising tide in the British steel industry can be measured in several ways: By the output of blast furnaces, by the volume of export trade, and by the values of the shares of operating companies," says the **Iron Age.** "In all of these new high points in the present movement were reached in January. Not only was the steel output in that month 624,300 tons—almost on a par with the 1913 monthly average of 639,000 tons, while export sales were about 85% of the pre-war volume, but on January 15th the ratio of market value to nominal or par value of the shares of thirty-nine iron, steel and engineering companies stood at 110.8, as compared with the low of 79 on February 14, 1922. In eleven months the increase in these representative shares has been about 40%. Indications are that the further revival of British industry will carry it, in the near future, so far as volume is concerned, to the position it occupied in the year before the war."

What the Ruhr Means—No more spectacular or sweeping event in the world's iron and steel history ever has taken place than that now being unfolded week by week in the Ruhr region of Germany. Invasion of this great industrial region by the French practically means the seizure of the second largest iron and steel district of the world, representing a total capacity of approximately 10,000,000 to 15,000,000 tons of iron and steel annually. In view of the possibilities and uncertainties of the situation, it may be said that the future control, if not sovereignty, of this great industry, with corresponding effect on the iron and steel industry of the world, is involved.—**Iron Trade Review.**

Typical German Automobile Contracts —A good indication of what the fluctuating value of the mark means to German manufacturers is given by the sales contracts in use by two of Germany's best known automobile builders. The contract of the Adlerwerke follows: "We must refuse any claims or pretensions for indemnification or payment of interest whatsoever which might be caused on account of any unforeseen delay. In the event of interruption of manufacture, strikes in our works, troubles, was of raw materials, or coal, and in case of any circumstances out of our own or our principal suppliers' responsibility and control (mobilization, war, seizure, prohibition of export trade, measures of government and force majeure), we shall be free from keeping strictly the promised time of delivery, including a few months' prolongation. In such cases, either the buyer or the seller is entitled to retire from his contract if after a lapse of about six months delivery should not be made." The Daimler company provides that: "Should at the time of delivery our list prices be higher, we reserve the right to ask the increased price. In this case the customer is entitled to withdraw from the contract within a fortnight, but without indemnity of any kind to or from us, provided that the new price exceeds the former by more than one third of the basis price. On the other hand, if at the time of delivery our list prices are lower than those quoted in our offer or confirmation of order, the reduced prices will be asked." — **American Machinist.**

British Steel Plants Expand—One of the most striking signs of returning prosperity in British steel production is the large extension now being carried out in a leading British steel and iron works. Several acres of ground have been acquired for the laying down of a large universal rolling mill and several heating furnaces, together with complete mills and a number of construction shops. The foundations for the new extensions are being excavated by two special machines mounted on caterpillar tractors, and some idea of the extent of the work may be gathered from the fact that three locomotives and about half a hundred cars will be used in removing and disposing of the material excavated. —**Canadian Machinery.**

Europe Demands American Machinery —From all parts of the Balkan Peninsular comes the news announcing the industrial regeneration of the various countries of that part of Europe, and American machinery manufacturers would do well by paying close attention to those markets. Though at the present time the principal imports of machinery and tools still some from countries with bad currency, yet the demand for "quality machines" is increasing, and quite a number of managers and engineers are well aware of the superiority of American made machines, and quite particularly of the superiority of American made machine tools. It should be added that in most of the leading industries of the Balkan countries there are employed many superintendents and foremen who have worked several years in the United States, and therefore are well acquainted with American methods as well as with American quality tools. It should, however, be borne in mind that catalogs in the English language are of little use in those countries. — **American Machinist.**

Foreign Trade Awakening — Remarkable nation-wide interest in foreign markets, reflected by a 400% increase in inquiries directed to the Department of Commerce by American business establishments of all kinds, during 1922 over 1921, is disclosed in the annual report of Director Julius Klein, of the Bureau of Foreign and Domestic Commerce, made public recently. The report, covering the fiscal year ended June 30, 1922, indicates that nearly 600,000 letters, each one dealing with a specific foreign trade problem, and thousands of routine inquiries, were received and answered by the bureau during the period mentioned. The number per day increased from 1,000 in July, 1921, to nearly 3,000 at the close of the year on June 30, 1922. More than 50,000 manufacturers and merchants called in person during the year at the bureau's branch offices in the leading cities to discuss export matters. Over 350,000 confidential circulars (each on a given trade prospect), and nearly 1,000,000 lists of prospective foreign buyers, were prepared for the use of business men.— **American Industries.**

New Coal Loading Equipment—A demonstration took place lately on the Clyde of a new equipment for loading bunker coal on board ship. In this system a self-propelled barge takes its place at the side of the vessel away from the wharf, and the process of coaling can proceed at the same time as the ordinary handling of cargo. The plant consists of a patented form of digger combined with an elevator and conveyor. The elevator, which travels on a gantry over the whole length of the barge, is fed by the digger, which is of the caterpillar type and has an endless chain with buckets attached. The buckets as they come over the top deliver the coal into a small hopper, whence it passes along conveyors to the steamer's bunkers. The apparatus loads coal at the average rate of 80 tons per hour, and effects great saving in fuel, time and cost. During the trial referred to the ship's bunker was filled in the short period of 30 minutes with a squad of only eight men engaged on the work. —**Canadian Machinery.**

MISCELLANEOUS

Liquidation Progresses Rapidly—"Manufacturers and dealers will welcome the statement to the effect that 83% of the surplus property for sale by the war department actually has been sold," says the **Iron Trade Review.** "According to the chief of the sales promotion section, property originally valued at about $2,400,000,000 was placed in the hands of the director of sales for liquidation. Of this amount, property costing $2,000,000,000 has been disposed of, and the visible supply now remaining represents an original cost of about $200,000,000. Future surplus will increase the total unsold supplies to about $400,000,000. Thus far the sales of surplus property have netted the government about 41% of the wartime cost. Considering that the material was purchased at the peak of the market, and much of it sold during a period when a virtual buyers' strike was in effect, the percentage is surprisingly high. However, to the average manufacturer the satisfaction gained through the thought that the government is doing a good job of reclaiming millions for the treasury doubtless is exceeded by his gratification that the final liquidation of surplus stocks is so near at hand."

The Engineer and the Engineering Society—Engineering is becoming more and more the dominating factor, not alone in the economic but also in the social and political relations of nations. The problems of transportation, generation and distribution of power, irrigation, road building, elimination of waste and others are all of vital importance to a people living in a modern civilization. In each of these the greatest single factor is engineering; in fact, everything that is of material benefit to the human race has been made possible by engineering. However, this does not excuse the engineer in whatever capacity he may be from responsibility, but rather adds to his charge. If our present civilization is to endure and our standards of living are to be maintained, then the scientists and engineers of the future must accomplish even greater achievements than has been done in the past. What this development means can best be expressed by saying that present scientific and engineering accomplishments have made some of the wildest conjectures of forty years ago commonplace devices of today. **Power.**

Ultra-Special Machine Tools—Machine shop practice in large works, where quantity production is a chief factor in planning equipment, has changed a great deal in the past two or three years. The very highly special machine has been giving way to tools of broader range capable of fashioning other than some one particular metal part. In some cases buyers have gone so far as to substitute general utility machines of the required type to do the work for which one-purpose machines had been considered indispensable. But in most instances the tendency has been toward a compromise between the two. This often is in the new standard type that the machine tools builders have evolved out of their experience with the requirements of quantity production shops. The machine tool builders have attended very thoroughly to the needs of the big firms which use their products as the chief element in manufacturing equipment. In fact, it is largely due to the influence of the machinery people that the pendulum has begun to swing away from the one-purpose type.—**Iron Age.**

COMPARISON OF METAL PRICES

	Range for 1921.		Range for 1922.		Range for 1923.		Closing Mar. 31,
Pig Iron.	High.	Low.	High.	Low.	High.	Low.	1923.
Bessemer, valley	32.00	20.00	33.50	19.00	31.00	27.50	31.00
Basic, valley	30.00	18.00	30.50	17.75	31.00	25.00	31.00
No. 2 foundry, valley ...	33.00	19.50	35.50	18.75	31.00	27.00	31.00
No. 2X fdy. Philadelphia	33.79	19.84	34.76	21.34	33.16	28.76	33.16
No. 2 foundry, Cleveland	33.56	20.56	35.50	19.56	32.50	27.50	32.50
No. 2X foundry, Buffalo .	31.25	19.00	34.25	19.50	30.25	26.75	30.25
No. 2 foundry, Chicago ..	33.00	18.00	33.00	18.50	32.61	29.11	32.61
No. 2 Southern, Birm. ...	34.00	16.50	28.00	15.00	27.00	23.00	27.00
Scrap Iron and Steel.							
Melting Steel, Pittsburgh	17.00	12.75	22.00	14.00	27.00	20.50	25.00
Heavy steel scrap, Phila.	16.00	10.00	19.00	11.00	26.50	18.00	25.50
Heavy melting steel, Chi.	16.50	10.00	19.00	11.00	24.50	18.50	22.75
No. 1 cast, Pittsburgh ..	22.50	15.00	25.00	16.00	27.00	22.50	26.75
Iron and Steel Products.							
Bessemer rails, mill	45.00	40.00	43.00	40.00	43.00	43.00	43.00
Iron bars, Pittsburgh	3.06	1.85	2.55	1.80	2.72	2.35	2.72
Iron bars, Philadelphia ..	3.85	1.80	2.58	1.70	2.82	2.32	2.72
Steel bars, Pittsburgh ..	2.35	1.50	2.25	1.35	2.35	2.00	2.35
Tank plate, Pittsburgh ..	2.65	1.50	2.50	1.35	2.45	2.00	2.45
Structural shapes, Pitts..	2.45	1.50	2.25	1.35	2.45	2.00	2.45
Grooved steel skelp, Pitts.	2.45	1.50	2.10	1.40	2.35	2.00	2.35
Black sheets, Pittsburgh.	4.35	2.75	3.75	3.00	4.00	3.35	4.00
Galvanized sheets, Pittsb.	5.70	3.75	4.75	4.00	5.50	4.35	5.25
Tin plate, Pittsburgh ...	7.00	4.75	4.75	4.60	6.00	4.75	5.50
Wire nails, Pittsburgh ..	3.25	2.50	2.70	2.40	2.90	2.70	2.90
Steel pipe, Pittsburgh...	57½%	71%	66%	71%	64%	66%	64%
Connellsville Coke at Ovens.							
Propt furnace	5.00	2.75	15.00	3.75	9.00	6.75	7.00
Prompt foundry	7.00	3.75	16.00	3.75	9.50	8.00	8.25
Metals — New York.							
Straits tin	65.00	32.50	39.00	25.50	51.50	28.75	48.25
Lake Copper	20.50	13.75	14.00	12.00	17.50	12.75	17.37½
Electrolytic copper	19.50	12.75	13.75	11.50	17.25	12.50	17.12½
Casting copper	19.25	12.75	13.00	11.25	16.87½	12.25	16.87½
Sheet copper	29.50	22.50	21.50	19.50	25.25	19.25	25.25
Lead (A. S. & R. Co. price)	9.25	4.75	5.00	4.00	8.25	4.70	8.25
Zinc (spelter)	9.85	6.00	6.10	4.25	8.35	4.82½	8.07½
Chinese and Japanese Ant.	11.62½	5.20	6.00	4.45	9.00	4.15	8.87½
Aluminum, 98-99%	32.75	22.00	26.00	17.00	26.00	16.50	26.00
Silver	137	59¼	73⅝	52⅝	73¾	62⅜	68⅜
St. Louis.							
Lead *	9.15	4.45	5.05	3.90	8.50	4.35	8.25
Zinc (spelter)	9.50	5.50	5.60	4.12½	8.00	4.47½	7.72½
Sheet zinc (f.o.b. smelter)	12.50	11.50	11.50	8.50	10.00	7.50	10.00
London.	£	£	£	£	£	£	£
Standard tin prompts	415½	198	210½	148	232	139	219
Standard copper, prompts	122	70½	75½	65¼	76¼	57⅛	74⅞
Lead	52⅜	21½	26	16½	29⅝	19½	28¼
Zinc (spelter)	63	22½	28¼	23½	39⅛	23⅞	36⅜

* Outside market.

COMPARISON OF SECURITY PRICES

Iron and Industrial Stocks.	Range. 1920. High.	Low.	Range. 1921. High.	Low.	Range. 1922. High.	Low.	Range. 1923. High.	Low.	Closing Mar. 29, 1923.
Allis-Chalmers	53⅞	26½	39¾	28¼	59¾	37¾	51¼	45	48½
American Can	61¾	21¾	35½	23½	76½	32⅛	106	73½	97⅞
American Car & Fdy...	147⅜	111	151	115¼	201	141	189	178	180⅝
American Loco	109¼	74	110¼	73½	138½	102	139⅜	120⅛	133⅛
American Smelt. & Rfg.	72	29¼	47¼	29⅝	67½	43⅝	69½	53	63⅛
Am. Steel Found., new.	50	26	35	18	46⅛	30¾	40⅞	35½	40
Am. Zinc & Lead Co. ..	21¾	5¾	14⅜	6¾	....	....	....	....	....
Anaconda Copper	66½	30	50¾	31¾	57	45	53½	45⅛	50⅜
Baldwin Loco	148½	78	100⅜	62¼	142¾	92¾	144¼	129¼	138½
Bethlehem Steel B	102½	48⅞	65	41½	82¼	55½	71⅞	60¼	65¾
Butte & Superior	29¼	8	22⅛	10	35¼	20⅜	37⅜	29½	33⅛
Cerro de Pasco	61⅜	24¼	36½	23	46⅜	32⅞	50½	42½	49⅞
Chile Copper	21¼	7¾	16⅞	9	29¼	15⅛	30⅝	27¾	28¾
Chino Copper	41⅝	16⅜	29½	19½	33⅜	22¼	31⅞	24⅜	29½
Colo. Fuel & Iron	44¼	22	32¾	22	37⅜	24	31¾	25¼	28
Crucible Steel	278½	70	107½	49	98⅜	52¾	84½	67½	80
General Electric	172	116½	143¾	109½	190	136	190	179	184½
General Motors	42	10¾	16¼	9⅜	15¼	8⅛	15½	13¼	14⅞
Granby Con.	55½	15	34½	15	35	22	33	23	31⅞
Great Northern Ore ...	41⅝	24⅞	35⅜	25⅝	45⅝	28⅞	36	30	35
Gulf States Steel	84⅞	25	50⅞	25	94⅞	44⅞	104⅝	78	98⅝
Inspiration Copper	61⅞	28	42¼	29⅝	45	31	43¾	33	39
International Harvester	142½	88	100½	67⅝	115⅞	79⅜	98½	87¾	89¾
International Nickel...	26¾	11⅛	17	11½	19¾	11¼	16¼	14	14⅞
Kennecott Copper	33½	14⅝	27⅞	16	39⅝	25½	45	35	41½
Midvale Steel	52¾	29½	33½	22	45½	26	32	27	30
National Enam. & Stg..	89½	43¾	66	26	68½	30¾	73	65	69¾
National Lead	93¼	63½	87	67¾	129¼	85	136¾	123½	131½
N. Y. Air Brake (new)	....	....	....	....	41⅝	24½	39½	26⅝	36
Pressed Steel Car	113⅞	72½	96	48	95¼	63	81½	58	68½
Railway Steel Spring ..	106½	73	99½	67	126¼	94	123	110	118
Ray Consolidated	22¾	10	15⅞	11	19	12⅛	17¼	13⅜	15¼
Republic Iron & Steel.	124¾	55¼	73½	41	78½	43½	66¼	47	61⅜
Sloss-Sheffield	82¼	43	56	32⅛	54½	34½	54¼	42	53½
U. S. Cast Iron Pipe ...	25½	10½	19	11½	39	16⅛	34½	28½	31
U. S. Smelt., Rfg. & M.	76	29½	39⅜	26	45¾	32¾	43⅜	34⅞	38½
U. S. Steel Corporation	109	76¼	86½	70	111½	82	109⅝	104	107⅜
U. S. Steel Corp. pfd...	115¾	104⅛	115	105	123	114¼	123½	118¼	118½
Utah Copper	80¾	44⅛	63⅜	41⅛	71½	59	76½	62½	72
Westinghouse Electric.	55⅛	40	52¼	38⅞	65⅞	49⅛	67⅛	58¾	62½

BUSINESS TRENDS

BUILDING RETURNS

Returns to "Bradstreet's" of building expenditures during January show a grand total of $193,996,272, which compares with $140,183,776 in January a year ago and $221,690,908 in December, 1922. There is here indicated a gain of 38.3% over January a year ago, and a decrease of only 12.4% from December last, which is regarded as indicating immense activity for a mid-Winter month.

Below is given a comparison of building expenditures, monthly since January, 1921:

	1922	1921	Change per cent.
Jan. .	$140,517,763	$61,133,167	I 129.5
Feb. .	135,452,009	84,480,760	I 60.4
Mar. .	241,460,369	124,337,045	I 94.1
1st quar.	517,430,141	269,950,972	I 91.7
April .	217,171,601	149,457,989	I 45.3
May .	247,722,281	143,699,279	I 72.4
June .	250,172,411	147,328,348	I 69.7
2d quar.	715,066,293	440,485,616	I 61.8
6 mos.	1,232,496,434	710,436,588	I 73.5
July .	205,244,105	151,862,525	I 35.1
Aug. .	220,456,973	159,940,684	I 37.8
Sept. .	200,588,817	153,763,676	I 30.4
3d quar.	626,289,895	465,566,885	I 34.5
9 mos.	1,858,786,329	1,176,003,473	I 57.9
Oct. ..	209,070,208	172,517,220	I 21.5
Nov. .	206,345,905	148,066,886	I 39.1
Dec. .	223,861,943	141,694,615	I 58.0
4th quar.	639,278,056	462,278,721	I 38.2
12 mos.	2,498,064,385	1,638,282,194	I 52.5

Jan., 160 cities	1923	1922	Change per cent.
	$193,996,272	$140,183,776	I 38.3

RAILROAD CAR LOADINGS

Car loadings during the week ended March 17th totaled 904,286, a reduction of 933 cars from the total of the week preceding, according to the car service division of the American Railway Association. The volume of freight movement is still far above that of any corresponding week in previous years.

The increase as compared with the corresponding week of 1922 is 89,204 cars, and 212,890 cars as compared similarly with 1921. From January 1st to March 17th, inclusive, 9,474,662 cars were loaded. This was an increase of 1,232,574 over the total for the corresponding week last year, and an increase of 1,808,466 cars over the corresponding period in 1921.

The following table gives a comparison of the cars loaded with freight since the beginning of the current year and for the same period of the two preceding years:

	1923	1922	1921
Mar. 17 ..	904,286	815,082	691,396
Mar. 10 ..	905,219	820,886	700,440
Mar. 3 ..	917,896	793,115	711,367
Feb. 24 ..	830,223	728,925	659,642
Feb. 17 ..	817,778	780,924	692,007
Feb. 10 ..	853,289	777,801	687,867
Feb. 3 ...	865,675	747,895	699,718
Jan. 27 ..	871,164	740,386	701,605
Jan. 20 ..	865,578	731,109	708,658
Jan. 13 ..	873,251	714,191	715,855
Jan. 6 ...	770,303	599,433	697,641

FOREIGN TRADE

The Department of Commerce is gradually catching up with the work of reporting foreign trade totals, although the import returns, being only for November, are still far behind the monthly export figures, the latest of which are for January.

The following comparison covers the available data of exports and imports since the beginning of 1922:

1922—	Exports.	Imports.
January	$278,848,469	$217,185,396
February	250,619,841	215,743,282
March	330,326,608	256,177,796
April	318,461,898	217,023,142
May	307,568,828	252,817,254
June	335,116,750	260,460,898
July	301,157,335	251,771,881
August	301,774,517	281,376,403
September	313,196,557	298,493,403
October	370,718,595	276,082,699
November	380,056,542	294,000,000
December	344,425,364	.....
1923—		
January	339,000,000	.....

IRON AND STEEL MARKET

A few months hence March will probably be designated as the month in which the iron and steel market movement began to round the turn. There were developments in March that clearly suggest this, but while the statement is made that the rounding of the turn has begun it is recognized that prediction is sometimes hazardous. The fate is remembered of the predictions made last October, that by the end of the year the steel market would be much easier. Instead, the unprecedented occurred, one buying movement in steel following upon the heels of its predecessor without any intermediate readjustment in prices.

One will miss entirely the spirit or sense of the steel market if he regards it as made by the relation between productive capacity on the one hand and ultimate consumption on the other. In a way, that is demand and supply. It is not a case of productive capacity, but of ability to produce, and it is not a casess of ultimate consumption but of the disposition of both ultimate consumers and intermediaries, both jobbers and manufacturing consumers, to buy. It is the relation between these that has been largely responsible for the steel market of the past twelve months. The physical capacity, in blast furnaces, Bessemer converters, open-hearth furnaces and finishing mills is such that the country could not possibly consume continuously the equivalent steel supply. It has enough inventions and workmen and willingness to work. What occurs is that men turn in to work for a spell and when they are in that mood stocks of steel and of manufactures of steel accumulate, and the production of steel has its ups and downs. Accordingly we made 41,000,000 tons of steel ingots in 1920 and 19,000,000 tons in 1921. Production decreased over 50%, while the general physical activity of the country decreased perhaps 20 or 25%.

Particularly at a time like this, the iron and steel market must be considered from a strictly technical aspect, the mental attitudes respectively of sellers

COMPOSITE PIG IRON.

Computation for April 2, 1923.

One ton Bessemer, valley	$31.00
Two tons basic, valley (31.00)	62.00
One ton No. 2 fdy., valley	31.00
One ton No. 2X fdy., Philadelphia	33.16
One ton No. 2X fdy., Buffalo	30.25
One ton No. 2 fdy., Cleveland	32.50
One ton No. 2 fdy., Chicago	32.61
Two tons No. 2 Southern foundry, Cincinnati (31.05)	62.20
Total, ten tons	314.62
One ton	31.462

Averaged from daily quotations.

	1923.	1922.	1921.	1920.	1919.	1918.
Jan.	27.31	19.71	32.62	39.84	32.39	34.19
Feb.	27.98	19.31	29.95	42.72	32.39	34.19
Mar.	30.36	19.26	27.35	43.05	30.47	34.14
Apr.	.....	20.77	25.80	43.62	28.05	33.88
May	.....	23.91	24.67	44.43	27.74	33.88
June	.....	24.29	23.08	44.80	27.15	33.91
July	.....	24.54	21.57	45.60	27.66	34.04
Aug.	.....	27.74	20.29	47.41	27.99	34.04
Sept.	.....	32.48	20.99	48.98	28.26	34.31
Oct.	.....	31.82	21.15	47.07	28.65	35.36
Nov.	.....	29.47	20.92	41.80	31.48	35.39
Dec.	.....	26.73	20.42	36.31	36.73	35.23
Year	.....	25.00	24.05	43.80	29.91	34.38

Annual Averages

1917	39.99	1914	13.52
1916	20.31	1913	15.42
1915	14.15	1912	14.82

COMPOSITE STEEL.

Computation for April 2, 1923.

Pounds	Group	Av. Price	Extension
2½	Bars	2.35	5.875
1½	Plates	2.45	3.675
1½	Shapes	2.45	3.675
1½	Pipe (1-3)	3.60	5.400
1½	Wire nails	2.90	4.350
1	Sheets (28 ga.)	4.00	4.000
½	Tin plate	5.50	2.750
Total, ten pounds			29.725
One pound			2.9725

Averaged from daily quotations.

	1923.	1922.	1921.	1920.	1919.	1918.
Jan.	2.59	2.16	3.25	3.35	3.58	3.80
Feb.	2.72	2.14	3.10	3.58	3.58	3.80
Mar.	2.83	2.09	2.94	3.78	3.47	3.80
Apr.	....	2.16	2.93	3.77	3.25	3.80
May	....	2.18	2.93	3.71	3.25	3.80
June	....	2.22	2.83	3.67	3.25	3.80
July	....	2.23	2.63	3.70	3.25	3.80
Aug.	....	2.36	2.48	3.80	3.25	3.80
Sept.	....	2.51	2.37	3.80	3.22	3.80
Oct.	....	2.57	2.31	3.67	3.23	3.80
Nov.	....	2.57	2.28	3.50	3.25	3.80
Dec.	....	2.57	2.23	3.28	3.25	3.67
Av.	....	2.31	2.69	3.63	3.32	3.79

Annual Averages

1917	4.46	1916	2.80	1915	1.63
1914	1.52	1913	1.72	1912	1.62

and buyers and the relations between them. To determine where we stand in the general cycle of the market movement one must study the phenomena of the different branches of the market in relation to the phenomena they have usually exhibited in these cycles.

To illustrate, one must scrutinize price movements separately in scrap, pig iron, semifinished steel and finished steel, and then when he observes that at about the middle of March the scrap market reached its highest point and greatest strength, immediately afterwards exhibiting weakness, and when he recalls that in all the past scrap has anticipated finished steel products in upward and downward movements he will be prepared to suspect that the general movement in the iron and steel market has begun to round the turn.

Pursuing the study of the technics of the market he will be impressed by the fact, that while while from March 1st to March 23d inclusive in 20 business days, we made no less than 22 advances in the eight descriptions of pig iron that make up our composite pig iron, considerably more than were made in the whole of February and many more than in January, in the remainder of March there were no changes. Even at the time of the last advances in pig iron predictions were being made that there would be further advances, and buyers believed the predictions otherwise they would not have bought so freely, for men believe there is room at the top. Buyers do not crowd each other if they think they are at the top.

Next one will consider the point that sales of finished steel products for late

PIG IRON PRICES

(Averaged from daily quotations; at Philadelphia, Buffalo, Cleveland and Chicago, prices are delivered.)

	Bessemer, Valley	Basic, Valley	No. 2 fdy. Valley	Basic. Phila.	No. 2X Phila.	No.2Xfdy. Buffalo.	No. 2 fdy. Cleveland.	No. 2 fdy. Chicago.	No. 2 fdy. Birmingham.	Ferro-manganese.*	Comp. Pig Iron.
Feb. 1921	29.63	27.71	28.29	29.28	30.73	30.17	30.15	30.87	27.50	90.00	29.95
Mar. ...	26.70	24.41	25.89	26.54	28.03	29.01	27.70	27.07	25.52	90.00	27.35
April ..	25.00	23.00	24.81	25.47	26.38	27.17	26.77	25.32	23.77	90.00	25.80
May ...	24.32	22.15	23.60	23.70	24.96	25.40	25.56	23.70	21.80	85.00	24.47
June ...	22.88	21.20	22.42	23.54	24.21	22.45	24.17	22.08	20.48	75.00	23.08
July ...	21.34	19.52	20.40	22.40	23.00	20.68	21.66	19.98	20.18	70.00	21.57
Aug. ...	20.00	18.22	19.59	19.70	20.42	19.48	20.56	19.64	18.70	68.50	20.29
Sept. ..	20.00	19.00	20.86	19.14	20.84	20.08	20.56	22.18	19.06	66.00	20.99
Oct. ...	20.00	19.24	21.00	20.50	21.40	20.50	20.56	22.35	19.00	60.00	21.15
Nov. ...	20.00	19.00	20.78	20.50	21.93	19.82	20.56	21.79	18.56	60.00	20.92
Dec. ...	20.00	19.00	20.00	20.45	21.88	19.38	20.56	20.53	17.31	59.00	20.42
Jan. 1922	19.62	18.19	19.38	20.25	21.34	19.75	19.92	19.84	15.96	58.00	19.71
Feb.	19.40	18.00	18.92	19.84	21.34	19.06	19.56	19.18	15.33	65.75	19.31
Mar. ...	19.02	17.89	18.87	19.84	20.73	18.56	19.56	20.48	15.31	62.50†	19.26
April ..	20.88	19.98	20.74	20.75	22.90	20.89	20.76	21.06	15.74	68.00†	20.77
May ...	25.08	24.62	24.00	23.37	25.51	23.44	24.56	23.05	17.63	70.00†	23.91
June ..	25.00	25.00	24.00	25.00	26.62	22.96	24.56	23.83	18.44	68.50†	24.29
July ...	25.00	24.32	24.20	25.54	28.00	25.05	24.56	24.73	18.56	69.00†	24.54
Aug. ...	27.74	26.17	29.04	29.00	31.69	30.42	29.16	28.17	20.37	70.00†	27.74
Sept. ..	33.76	30.08	35.02	30.90	34.76	34.13	35.50	32.53	25.40	77.00†	32.48
Oct. ...	33.23	30.23	31.63	29.50	32.69	31.60	34.27	32.15	27.04	100.00†	31.82
Nov. ...	31.70	28.28	28.78	28.14	30.78	28.41	31.34	30.65	24.12	100.00‡	29.46
Dec. ...	27.78	24.96	25.92	27.50	28.53	26.19	27.38	28.09	22.70	100.00‡	26.73
Jan. 1923	27.50	25.00	27.00	27.90	28.72	27.44	27.83	29.09	23.23	103.00‡	27.31
Feb.	27.75	25.67	27.21	28.25	29.79	28.52	28.42	30.13	24.29	106.00‡	27.98
Mar. ...	29.94	29.44	30.00	29.17	31.86	29.40	31.31	31.46	26.33	117.00‡	30.26
Yearly averages.											
1913 ...	16.26	14.77	14.87	16.23	16.56	14.87	15.37	16.39	11.73	57.87	15.42
1914 ...	13.99	12.89	13.02	14.02	14.59	12.84	13.76	14.15	10.25	55.80	13.52
1915 ...	14.90	13.78	13.81	14.88	15.25	13.98	14.31	14.46	10.59	92.21	14.15
1916 ...	23.05	19.87	20.16	20.96	21.20	20.63	20.40	20.67	15.84	164.12	20.31
1917 ...	42.67	39.10	39.89	39.37	40.80	40.41	40.61	41.06	35.11	309.17	39.99
1918 ...	35.46	32.50	33.27	34.10	35.56	33.97	33.62	33.77	33.20	245.83	34.38
1919 ...	29.62	27.49	28.63	30.02	32.75	30.53	29.14	29.37	28.34	132.16	29.91
1920 ...	42.85	42.05	43.25	43.26	46.74	45.23	43.66	43.25	40.43	172.33	43.80
1921 ...	23.49	21.87	23.30	23.56	24.74	23.78	24.34	24.05	21.92	76.54	24.05
1922 ...	25.68	23.98	25.04	24.88	27.07	25.04	25.93	25.31	19.72	75.33	25.00

* Delivered. † Seaboard. ‡ F. o. b. furnace.

delivery have been decreasing since some time in February, leaving it that the major portion of the activity, especially late in March, was in early deliveries, at delivery premium prices. This would indicate that the market is wound up to run just about so long. The only claim that runs counter to such a view is that the mills are not selling far ahead because they do not want to. That can well be doubted when the mills admit, what everyone can see, that steel prices are amply high already. Sellers cannot reasonably be waiting for higher prices still before they sell.

Next one will consider the strictly human element, the important point in which is the very fresh recollection men have of 1920. That means two things, of of equal importance:

First, that in the last three months of 1920 sellers found themselves with business on books that was of no use because buyers would not accept delivery and buyers found themselves with steel purchased that they could not use.

Second, that in the middle of 1920 there were large losses, sellers losing in that if they had sold less freely early in the year they could have obtained higher prices for the same material, while many buyers were losing because if they had bought earlier they would not have had to pay so much.

The reasonable assumption is that in the past three months men have been trying to profit by the experience of 1920. Buyers have endeavored to buy enough. Some sellers have been careful not to oversell while others have held capacity in reserve, engaging themselves only a few weeks ahead. Men have wondered at the strength of the steel market. Is not the combination of this buyers' policy enough to make any market strong?

To profit by the later experience in 1920, mills have presumably been indisposed to sell for late delivery because doing so might mean nothing but to clutter their order books with meaningless entries. Buyers, if given the opportunity, would perhaps be quite indisposed to buy for the third and fourth quarters of the year.

Finally, one will consider the relation between production of steel and the ability of the country to utilize steel, fabricating it and putting it into employment. Usually this application of steel involves a great deal of work. Mention is made of steel used in dwelling houses. One may estimate that something like a ton of nails and pipe goes into a $10,000 dwelling house, but if it is preferred to estimate two or three tons. The difference is between 100,000 tons, 200,000 tons or 300,000 tons for each billion dollars the country spends in dwelling houses, when we are making finished steel at the rate of 3,000,000 tons a month. It is true that jobbers and retailers have difficulty in securing deliveries of hardware, tools, etc., but that is because the factories making hardware and tools have not enough capacity, or not enough men to operate the capacity, not because they have not enough steel.

Comparing 1920 and the present, 1920 was preceded by the iron and steel and coal srikes and contained the "outlaw" railroad strikes begun April 1, 1920, causing ingot production to drop from March to April by 17%. This year was preceded by heavy production in the last quarter of the old year and sees very heavy production now. In 1920 we made 41,000,000 tons of ingots and had large exports. Lately we have been making ingots at 44,000,000 to 47,000,000 tons and have remarkably light exports.

To sum up in a nutshell. When workman are sitting at home idle waiting for their employers to receive steel for construction work or manufacturing there will be a scarcity of steel. Meanwhile there is not. There was fear that there would not be enough steel, or that the price would be very high, but the technical developments of the market show that in March the first beginnings were made of rounding the turn in the general iron and steel market.

PIG IRON

In the eight descriptions of pig iron that make up our composite pig iron there were 22 advances in the first 20 business days of March and in the remaining seven business days none. The average advance was more than $2.50, or more than occurred from the turn of the market at the middle of December up to March 1st. The composite now stands at $12.00 above its low point of early March, 1922, the lowest point since October 1, 1916. March 24th the Lake Superior iron ore selling season opened with prices up 50 cents as had been predicted for several weeks, making Mesabi non-Bessemer $5.55, f.o.b. Lake Erie dock. The

advance represented a restoration of the 1921 schedule, which was $1.00 under that of 1920, the highest of modern times. The iron ore the furnaces possessed when the pig iron market was $12.00 a ton lower than at present averaged a higher cost than the ore they will receive in the coming season and a much higher cost than what they have now. Freight rates on coke, limestone and other supplies are lower, by the reduction of July 1, 1922. On the other hand coke prices are higher, labor is higher and the furnaces were losing money when pig iron was at its low point. On an average, furnaces probably at least broke even on the iron they delivered during the quarter just ended, they will make a good profit on the higher priced iron they will deliver in the quarter now beginning, and they would have very substantial profits should they sell and deliver all their third quarter iron at prices now ruling. Altogether, particularly considering the quietness in pig iron since the recent advances, it is difficult to believe that the market will go higher still.

PIG IRON PRODUCTION

March pig iron production was the heaviest of record for a single month. The output of coke and anthracite iron amounted to 3,521,275 tons, equivalent to an average daily rate of 113,590 tons. During the war the largest monthly production was in October 1916, when the total was 3,508,849 tons, equivalent to 113,189 tons a day. It is notable, however, that in September 1918, a month of 30 days, the average daily production was 113,942 tons, thus exceeding the daily production in March 1923 by 352 tons, but March this year has the distinction of having produced the largest tonnage in any calendar month in the distory of the iron industry.

On April 1st this year 293 blast furnaces were blowing, having a daily capacity of 115,800 tons. Production at this rate would mean 42,267,000 tons a year of coke and anthracite pig iron. Estimating charcoal production at the rate of a little less than 250,000 tons, the indication is that pig iron of all kinds is being produced today at the rate of 42,500,000 tons a year in round numbers.

In March this year 18 blast furnaces were blown in and only three were blown out, a net gain of 15. On March 1st 278 furnaces were active, having a capacity of 110,055 tons a day. The tremendous rate of output of pig iron today may be appreciated when it is recalled that the heaviest annual production was 39,434,797 tons in 1916.

Steel companies in March produced 2,716,371 tons of pig iron which was at a daily rate of 87,625 tons. In February the same companies produced 2,259,0000 tons approximately which is at a daily rate of 80,684 tons. Merchant furnaces in March produced 804,904 tons which was at a daily rate of slightly less than 25,965 tons. In February the same merchant furnaces produced 735,-

UNFINISHED STEEL AND IRON BARS.

Averaged from daily quotations.

1921—	Billets. Pitts.	Sheet Bars. Pitts.	Rods. Pitts.	—Iron bars, deliv.— Phila.	Pitts.	Ch'go.
Jan.	45.00	47.00	57.00	2.85	3.06	2.68
Feb.	42.00	42.00	57.00	2.70	2.70	2.62
Mar.	39.00	39.00	47.00	2.56	2.60	2.60
April	37.00	38.50	47.50	2.35	2.45	2.45
May	37.00	39.00	48.00	2.35	2.35	2.38
June	35.00	36.00	48.00	2.20	2.25	2.25
July	32.00	33.00	43.00	2.07	2.20	1.94
Aug.	30.25	30.50	42.00	2.00	2.08	1.75
Sept.	30.00	30.00	40.50	1.97	2.00	1.75
Oct.	30.00	30.00	40.00	1.92	2.00	1.75
Nov.	29.00	30.00	40.00	1.90	1.97	1.70
Dec.	29.00	29.00	38.00	1.85	1.95	1.70
1922—						
Jan.	29.00	29.00	37.00	1.80	1.82	1.60
Feb.	28.50	29.00	36.00	1.75	1.78	1.60
Mar.	28.00	29.00	36.00	1.70	1.70	1.54
April	30.00	31.75	38.00	1.81	1.75	1.57
May	34.00	35.00	38.00	1.86	1.83	1.65
June	35.00	35.00	38.00	1.96	1.95	1.73
July	35.00	35.00	40.00	2.12	2.13	1.85
Aug.	37.00	37.00	43.00	2.16	2.15	1.95
Sept.	39.00	40.00	45.00	2.48	2.25	2.25
Oct.	39.50	39.50	45.00	2.43	2.40	2.50
Nov.	37.75	37.75	45.00	2.37	2.40	2.50
Dec.	36.50	36.50	45.00	2.32	2.35	2.50
1923—						
Jan.	37.50	37.50	48.50	2.36	2.38	2.45
Feb.	39.40	39.40	50.00	2.51	2.54	2.35
Mar.	44.00	44.00	50.00	2.70	2.70	2.50
Yearly averages.						
1913.	25.56	26.35	28.39	1.51	1.59	1.45
1914.	20.08	20.84	25.50	1.20	1.27	1.07
1915.	23.14	23.46	28.28	1.37	1.32	1.24
1916.	45.02	45.10	57.58	2.57	2.59	2.31
1917.	71.15	75.87	80.23	4.06	4.09	3.78
1918.	47.30	50.80	57.00	3.71	3.50	3.50
1919.	40.52	43.77	53.11	2.94	2.80	2.69
1920.	57.79	65.21	70.00	4.35	4.13	3.65
1921.	34.60	35.33	45.67	2.23	2.30	2.13
1922.	34.10	34.54	40.50	2.06	2.04	1.94

033 tons, which is at a daily rate of 26,250 tons. Thus there was a slight decrease in the production of merchant furnaces in March. All of the heavy gain last month was due to the blast furnace operations of steel companies.

The following table shows the estimated annual rates of production of coke and anthracite iron in each month during the last three years.

Estimated annual rates.

	1923	1922	1921
Jan.	38,000,000	19,300,000	28,750,000
Feb.	39,000,000	21,300,000	25,550,000
Mar.	42,265,000	24,000,000	19,000,000
April		25,250,000	14,600,000
May		27,250,000	14,450,000
June		28,900,000	13,000,000
July		28,500,000	10,200,000
Aug.		21,550,000	11,250,000
Sept.		24,950,000	13,000,000
Oct.		31,350,000	14,600,000
Nov.		34,900,000	17,200,000
Dec.		36,350,000	19,400,000

Yearly Totals

1922	27,219,904		
1921	16,688,126	1916	39,434,797
1920	36,925,987	1915	29,916,213
1919	31,015,364	1914	23,332,244
1918	39,054,644	1913	30,966,152
1917	38,621,216	1912	29,726,937

STEEL PRODUCTION

March production of steel ingots reported by the American Iron and Steel Institute covering returns from thirty companies amounted to 3,402,007 tons which is equivalent to a daily rate of 126,000 tons. Under date of April 3rd we estimated the output of these thirty companies 3,391,000 tons, equivalent to a daily rate of 125,593 tons.

In February the Institute reported output for the same companies of 2,919,017 tons, equivalent to a daily rate of 121,625 tons. In January the total output by these thirty companies was 3,251,694 tons, equivalent to a daily rate of 120,433 tons. In the first quarter of the year the Institute report for the same thirty companies shows an output of 9,572,718 tons.

Steel Corporation

The U. S. Steel Corporation in March as previously estimated produced 1,844,856 tons of ingots, equivalent to a daily rate of 68,328 tons, operating at an average rate of 93.6% of total capacity. In February the Corporation subsidiaries produced 1,576,800 tons, which was at a daily rate of 65,700 tons, operating at an

STEEL MAKING PIG IRON AVERAGES

Bessemer and basic pig iron averages compiled by Messrs. W. P. Snyder & Company from sales in the valley market of 1,000 tons and over.

	Bessemer.			Basic.		
	1923.	1922.	1921.	1923.	1922.	1921.
Jan.	27.50	19.50	32.00	25.58	18.19	30.00
Feb.	28.02	19.50	27.00	26.38	17.75	25.00
Mar.	30.26	19.39	26.20	30.02	18.00	24.50
April	.....	20.54	25.00	.....	19.30	22.50
May	.....	24.40	24.25	.....	24.91	21.87
June	.....	25.00	23.00	.....	25.00	20.70
July	.....	25.00	20.88	.....	24.56	18.80
Aug.	.....	28.67	20.00	.....	25.41	18.33
Sept.	.....	33.50	20.00	.....	32.93	19.25
Oct.	.....	33.50	20.00	.....	30.00	19.00
Nov.	.....	31.75	20.00	.....	27.60	19.00
Dec.	.....	28.10	20.00	.....	24.57	18.69
Year	.....	25.75	23.19	.....	24.02	21.47

All prices are f.o.b. valley furnace; freight, August 26, 1920, $1.96; August 1, 1922, $1.77.

STEEL CORPORATION BOOKINGS

Changes in unfilled tonnage with shipments and bookings estimated in percentage of capacity.

1921.	Shipments. %	Bookings. %	Difference. %	Difference. Tons.
Nov.	52	49	— 3	— 362,287
Dec.	48	49	+ 1	+ 17,872
1922.				
Jan.	47	45	— 2	— 26,736
Feb.	57	49	— 8	— 100,609
Mar.	65	90	+25	+ 353,079
April	70	115	+45	+ 602,769
May	75	86	+11	+ 157,311
June	75	103	+28	+ 381,303
July	75	86	+11	+ 140,630
Aug.	67	79	+12	+ 173,944
Sept.	67	121	+54	+ 741,502
Oct.	76	91	+15	+ 210,680
Nov.	81	76	— 5	— 62,045
Dec.	80	73	— 7	— 94,539
1923.				
Jan.	86	97	+11	+ 165,073
Feb.	88	117	+29	+ 373,213

Unfilled Orders.

At end of the quarter, last three figures omitted.	First.	Second.	Third.	Fourth.
1908	3,765	3,313	3,421	3,603
1909	3,542	4,057	4,796	5,927
1910	5,402	4,257	3,158	2,674
1911	3,447	3,361	3,611	5,084
1912	5,304	5,807	6,551	7,932
1913	7,468	5,807	5,003	4,282
1914	4,653	4,032	3,787	3,836
1915	4,255	4,678	5,317	7,806
1916	9,331	9,640	9,522	11,547
1917	11,711	11,383	9,833	9,381
1918	9,056	8,918	8,297	7,379
1919	5,430	4,892	6,284	8,265
1920	9,892	10,978	10,374	8,148
1921	6,284	5,117	4,560	4,268
1922	4,494	5,635	6,691	6,746

averaged rate of 90%. In January when the Corporation averaged 88% of capacity production of ingots was 1,734,480 tons, equivalent to a daily rate of 64,240 tons. In the first quarter of the year the Corporation produced a total of 5,153,336 tons when operations averaged 90½% of capacity.

Independent Companies

It is estimated that independent steel companies produced in March 2,043,144 tons, equivalent to 75,672 tons daily when operating at an average rate of slightly under 78.50% of capacity. In February these same companies produced 1,759,220 tons which was at a daily rate of 73,300 tons, when operating at an average rate of 75.50% of capacity. In January production was 1,892,000 tons equivalent to a daily rate of 73,397 tons when operating at an average rate of 75.7% of capacity.

All Companies

All of the steel companies in March are indicated to have produced 3,888,000 tons, equivalent to a daily rate of 144,000 tons when operating at a rate slightly under 85% of capacity. This is upon the assumption that steel companies which did not report operated at the same average rate as those which did report to the Institute. This covers only 12.50% of the total. In February all of the steel companies in the 24 active days of the month produced 3,336,000 tons approximately, equivalent to an average daily rate of 139,000 tons. In January, a month of 27 active days, total production is indicated to have been 3,716,221 tons, equivalent to a daily rate of 137,637 tons. In February the industry as a whole utilized 82% of capacity and in January 81%.

In the first quarter of the year all

FINISHED STEEL PRICES

(Averaged from daily quotations, f. o.b. Pittsburgh).

	Shapes.	Plates.	Bars.	Pipe.	Wire.	Grooved Wire Nails.	Steel Skelp.	Sheets — Black	Sheets — Galv.	Sheets — Blue Annld.	Tin plate.	Comp. Fin. Steel.
Feb. 1921	2.30	2.35	2.13	57½	3.00	3.19	2.30	4.22	5.45	3.30	7.00	3.10
Mar.	2.10	2.10	2.00	57½	3.00	3.01	2.20	3.95	4.98	3.00	7.00	2.94
April ...	2.16	2.16	2.06	61	3.00	3.15	2.15	3.90	4.85	3.05	6.54	2.93
May	2.20	2.20	2.10	62½	3.00	3.25	2.20	4.00	5.00	3.10	6.25	2.93
June	2.15	2.06	2.08	62½	2.75	3.00	2.10	3.86	4.80	2.95	5.90	2.83
July	1.96	1.93	1.88	64	2.56	2.81	1.90	3.46	4.40	2.55	5.75	2.63
Aug.	1.84	1.84	1.75	64½	2.50	2.75	1.75	2.94	3.94	2.30	5.25	2.48
Sept. ...	1.68	1.67	1.67	66⅝	2.57	2.85	1.67	2.83	3.83	2.33	5.00	2.37
Oct.	1.60	1.59	1.60	68½	2.60	2.90	1.65	3.00	4.00	2.25	4.75	2.31
Nov.	1.60	1.51	1.56	68½	2.60	2.90	1.60	2.92	3.92	2.25	4.75	2.28
Dec.	1.57	1.50	1.53	69¾	2.44	2.70	1.52	3.00	4.00	2.25	4.72	2.23
Jan. 1922	1.50	1.50	1.50	71	2.25	2.50	1.50	3.00	4.00	2.25	4.75	2.16
Feb.	1.46	1.46	1.46	71	2.22	2.47	1.46	3.00	4.00	2.25	4.75	2.14
Mar.	1.41	1.39	1.41	71	2.25	2.40	1.40	3.00	4.00	2.25	4.61	2.09
April	1.50	1.49	1.50	71	2.25	2.40	1.50	3.12	4.12	2.37	4.66	2.16
May	1.52	1.52	1.55	71	2.25	2.40	1.55	3.15	4.15	2.40	4.72	2.18
June	1.60	1.60	1.60	71	2.25	2.40	1.60	3.15	4.15	2.40	4.75	2.22
July	1.62	1.62	1.62	71	2.25	2.40	1.62	3.15	4.15	2.40	4.75	2.23
Aug.	1.82	1.82	1.80	70⅛	2.26	2.41	1.80	3.27	4.27	2.46	4.75	2.36
Sept.	2.00	2.00	1.92	68	2.37	2.62	2.10	3.35	4.35	2.60	4.75	2.51
Oct.	2.00	2.08	2.00	66⅞	2.45	2.70	2.05	3.35	4.35	2.70	4.75	2.57
Nov.	2.00	2.00	2.00	66	2.45	2.70	2.00	3.35	4.35	2.55	4.75	2.57
Dec.	2.00	2.00	2.00	66	2.45	2.70	2.00	3.35	4.35	2.50	4.75	2.57
Jan. 1923	2.04	2.04	2.00	66	2.49	2.70	2.00	3.35	4.35	2.50	4.75	2.59
Feb.	2.16	2.18	2.16	64¼	2.61	2.80	2.16	3.40	4.49	2.55	4.78	2.72
Mar.	2.29	2.29	2.25	64⅝	2.70	2.82	2.30	3.63	5.00	2.95	5.09	2.83
Yearly averages:												
1913	1.42	1.41	1.38	79¾	1.50	1.70	1.39	2.20	3.28	1.68	3.56	1.72
1914	1.16	1.14	1.15	80	1.37	1.57	1.17	1.89	2.87	1.38	3.35	1.52
1915	1.30	1.29	1.31	79¼	1.48	1.66	1.27	1.93	3.85	1.49	3.19	1.63
1916	2.50	2.82	2.48	70⅞	2.45	2.53	2.34	3.06	4.85	2.99	5.34	2.80
1917	3.66	5.21	3.49	52⅛	3.48	3.56	3.95	6.29	8.21	6.15	7.85	4.46
1918	2.99	3.24	2.89	51⅛	3.25	3.50	2.89	4.98	6.24	4.23	7.78	3.79
1919	2.53	2.71	2.43	56¾	3.06	3.31	2.51	4.43	5.78	3.63	7.08	3.32
1920	2.99	3.20	2.99	55⅝	3.40	3.67	3.00	5.85	7.39	5.06	7.29	3.63
1921	1.07	1.96	1.89	63¾	2.77	2.98	1.96	3.54	4.57	2.74	5.83	2.69
1922	1.70	1.71	1.70	69½	2.31	2.51	1.72	3.19	4.19	2.43	4.73	2.31

of the steel companies therefore produced 10,939,221 tons. Our estimate, made on April 3rd was 10,927,666 tons.

Annual Rate

All of the steel companies in March are indicated to have operated at an average rate of 44,784,000 tons against an annual rate of 42,800,000 tons in January and 43,250,000 tons in February.

Therefore, as previously pointed out, the production in March by all companies was the largest since March 1920, while the production during the first quarter of this year was record breaking.

Production in March this year by the 30 steel companies which report to the American Iron and Steel Institute was record-breaking, exceeding that of March 1920 and of October 1918, but the rate of operations of all steel companies last month was less than that in March 1920 and all steel companies in March 1920, produced about 100,000 tons more than last month.

The following table shows the monthly production reported by the 30 companies which make returns to the American Iron and Steel Institute, as compared with the corresponding months last year, also the estimated annual rate of production by all steel companies for each month during the years 1922 and 1921:

	Month's production as reported.		Estimate of total annual rate. (000 omitted)	
	1922.	1921.	1922.	1921.
Jan.	1,593,482	2,203,180	22,750	29,100
Feb.	1,745,022	1,749,477	26,850	25,400
Mar.	2,370,751	1,570,978	32,550	21,000
April	2,444,513	1,213,958	35,450	16,800
May	2,711,141	1,265,850	36,400	18,000
June	2,634,477	1,003,406	36,600	14,000
July	2,487,104	803,376	36,000	11,100
Aug.	2,214,582	1,138,071	30,000	15,800
Sept.	2,373,779	1,174,740	33,000	16,850
Oct.	2,872,415	1,616,810	40,000	23,000
Nov.	2,889,297	1,660,001	40,000	23,300
Dec.	2,779,890	1,427,093	39,500	19,750

1923.		1923.	
Jan.	3,251,694	Jan.	42,800
Feb.	2,919,017	Feb.	43,250
Mar.	3,402,007	Mar.	44,785

IMPORTANT STEEL PRICE CHANGES

At the end of 1920 prices of independent steel producers had declined to Industrial Board schedule of Mar. 21, 1919, to which U. S. Steel Corporation had meanwhile adhered. These prices are given under date of Jan. 1, 1921, subsequent changes being in open market. Only the more important changes are listed.

BARS.

Jan. 1, 1921	2.35	Feb. 18, 1922	1.40
Feb. 11	2.00	Mar. 29	1.50
April 13	2.10	May 17	1.60
June 24	2.00	July 26	1.70
July 5	1.90	Aug. 9	1.80
July 26	1.75	Aug. 25	1.90
Sept. 9, 1921	1.65	Sept. 27,	2.00
Sept. 27	1.60	Jan. 31, 1923	2.10
Nov. 9	1.55	Feb. 16,	2.20
Dec. 19	1.50	Feb. 23,	2.25
		April 2,	2.35

PLATES

Jan. 1, 1921	2.65	Oct. 27	1.55
Feb. 10	2.40	Nov. 9	1.50
Feb. 17	2.25	Feb. 18, 1922	1.40
Feb. 23	2.10	April 5	1.50
April 13	2.20	May 25	1.60
June 10	2.00	July 26	1.70
July 15	1.90	Aug. 9	1.80
July 26	1.85	Aug. 25	2.00
Aug. 25, 1921	1.80	Jan. 19, 1923	2.10
Sept. 2	1.75	Feb. 9,	2.20
Sept. 9	1.65	Feb. 23,	2.25
Sept. 27	1.60	Mar. 21,	2.35
		April 2,	2.45

SHAPES

Jan. 1, 1921	2.45	Sept. 27	1.60
Feb. 11	2.25	Dec. 21	1.50
Feb. 17	2.20	Feb. 18, 1922	1.40
Feb. 28	2.10	Mar. 9	1.50
April 13	2.20	May 25	1.60
June 24	2.00	July 26	1.70
July 22	1.90	Aug. 9	1.80
July 26	1.85	Aug. 25	2.00
Aug. 25, 1921	1.80	Jan. 19, 1923	2.10
Sept. 2	1.75	Feb. 16,	2.20
Sept. 9	1.70	Feb. 23,	2.25
Sept. 26	1.65	Mar. 21,	2.35
		April 2,	2.45

STEEL PIPE

Jan. 1, 1921	57½%	Sept. 16	68½%
Mar. 24	58½%	Dec. 16,	71%
April 7	59½%	Aug. 23, 1922	68%
April 13	62½%	Oct. 19, 1922	66%
July 9, 1921	64½%	Feb. 3, 1923	64%

WIRE NAILS

Jan. 1, 1921	3.25	Dec. 9	2.75
Feb. 17	3.10	Dec. 21	2.50
Mar. 4	3.00	Feb. 21, 1922	2.40
April 13	3.25	Aug. 30	2.60
June 1	3.00	Sept. 27,	2.70
July 9, 1921	2.75	Feb. 1, 1923	2.80
Sept. 12	2.90	Mar. 26,	2.90

BLACK SHEETS

Jan. 1, 1921	4.35	Sept. 22	3.00
Feb. 11	4.15	Nov. 1	2.90
Mar. 8	4.00	Nov. 25	3.00
Mar. 17	3.85	April 7, 1922	3.15
April 13	4.00	Aug. 14	3.35
July 5	3.50	Feb. 23, 1923	3.60
July 26, 1921	3.25	Mar. 27,	3.75
Aug. 1	3.00	April 3,	4.00
Aug. 25	2.75		

TIN PLATE

Jan. 1, 1921	7.00	Mar. 21, 1922	4.60
April 13,	6.25	April 5	4.65
June 7	6.00	April 24	4.70
June 14	5.75	May 17	4.75
Aug. 1, 1921	5.25	Feb. 26, 1923	5.00
Sept. 15	5.00	Mar. 23,	3.00
Sept. 19	4.75	Mar. 27,	5.50

BLUE ANNEALED SHEETS

Jan. 1, 1921	3.55	Sept. 22	2.50
Feb. 11	3.35	Nov. 1	2.25
Feb. 16	3.20	April 7, 1922	2.40
Mar. 8	3.00	Aug. 14	2.50
April 13	3.10	Sept. 20,	2.60
June 10	2.90	Nov. 23,	2.50
July 6, 1921	2.65	Feb. 23, 1923	2.75
Aug. 2	2.40	Mar. 23,	3.00
Aug. 16	2.25	April 3,	3.25

GALVANIZED SHEETS

Jan. 1, 1921	5.70	Aug. 25	3.75
Feb. 11	5.55	Sept. 22	4.00
Feb. 16	5.35	Nov. 1	3.90
Feb. 24	5.25	Nov. 25	4.00
Mar. 8	5.10	April 7, 1922	4.15
Mar. 17	5.00	Aug. 14,	4.35
June 22	4.75	Feb. 23, 1923	4.75
July 5, 1921	4.50	Mar. 20,	5.00
July 22	4.25	April 3,	5.25
Aug. 2	4.00		

SEMIFINISHED STEEL

Steel mills having regular customers in sheet bars made first quarter contracts with them at $36.50 and second quarter contracts at $42.50, but refused to sell in the open market, needing the steel themselves. A mill in Cleveland not having regular customers, has sold at $45.00 to $50.00, f.o.b. maker's mill. Cleveland, and perhaps some mills will be tempted to sell when bid high prices, but altogether the sheet and tin mills that do not make their steel or do not have regular sources of supply find it difficult to get sheet bars. There have been few transactions in billets and slabs in the open market.

BARS, SHAPES AND PLATES

Late in March market minimums became 2.35c on bars and 2.45c on shapes and plates, while premiums for early deliveries increased during the month. The total advance from the low point of early in March, 1922, is fully $20.00 a ton in bars and $22.00 a ton in shapes and plates. Before the war market movements generally represented $4.00 to $6.00 a ton in these heavy rolled products, and the period of advances usually occupied six to nine months. Those who attempt to predict iron and steel prices on the basis of cyclical studies would have stopped the present movement several months ago and would have been reducing prices last month.

TUBULAR GOODS

Pipe mills continued under heavy pressure for deliveries during March. The majority have been allocating their shipments, placing tonnage where it seemed to be most needed. Demand has been good in all descriptions of tubular goods, line pipe, oil country goods generally, boiler tubes and merchant pipe. Jobbers would buy much more than mills will sell them. Mill prices were stationary in March, except that the Wheeling independent advanced to three points above the regular mill prices, which are on the level of a 64% basing discount for merchant pipe.

SHEETS

Sheet production has been very heavy, mills producing nearly at capacity. The usual reports of sheet mill operations are misleading, being on a different basis from that used in referring to

Allegheny Steel
and
Allegheny Iron

SHEETS BOILER TUBES
PLATES WASHERS
STEEL CASTINGS
Hot and Cold Pressed Stampings

ALLEGHENY STEEL COMPANY
PITTSBURGH, PA.

SOLICITING AGENTS
501 Fifth Ave., New York 1436 Dime Bank Bldg., Detroit, Mich.
Steel Sales Corporation, 129 South Jefferson Street, Chicago.

other steel production. A pair of Bessemer converters or a line of open-hearth furnaces may produce tonnage equal to 100% of capacity while under exceptional conditions may run 5%, 10% or 15% above rated capacity. Sheet mill operations are usually referred to in terms of the percentage of the number of stands of rolls in operation. No more rolls can turn than exist and it would be almost a miracle even for all of them to operate at one time. What is called a 90% operation of sheet mills is really approximately a 100% operation. The production of sheets has been heavy and ought to be enough to go around. Some mills are sold through June, others for only a few weeks. The latter are securing what may be called "delivery premiums" but the great bulk of the current business is at these prices, say 3.25c for blue annealed, 4.00c for black and 5.25c to 5.50c for galvanized. The lower priced business, through June, was done some time ago.

TIN PLATE

Production in the first quarter of the year was considerably heavier than in any previous first quarter, but the inference from this that there will be enough tin plate is not justified. For one thing, production may be lighter in the second quarter, on account of labor and steel scarcity, when normally there is an increase, and for another thing to make a new record in tin plate production in a year does not insure a sufficient supply, considering that the existing record is one made in 1917, six years ago. A more natural course in tin plate is for production and consumption to increase something like 10% each year, not to increase every sixth year.

Makers of packers' cans were moderately well covered through June at the $4.75 price, but they have been desirous of buying more. Other consumers have been unable to buy all they want. Prices paid vary according to circumstances, and the upper limit is above $6.00. There are cases of a mill having a nominal price, quoting a prospective buyer a still higher price, for a certain delivery, and then accepting a higher bid still from the buyer, for an earlier delivery. The average of the current transactions is probably above $5.50.

WIRE PRODUCTS

All wire mills have been well sold up. Deliveries have been very heavy but have not satisfied the trade. There is a reflection of the continued boom in garage and dwelling house construction, and of improved buying power on the part of farmers. During the month the American Steel & Wire Company advanced its price on nails from $2.80 to $2.90, a price the independents had been securing for some time, while one or two independents advanced to $3.00.

FABRICATED STEEL.

Fabricated structural steel orders placed in March probably amounted to about 190,000 tons, as the verbal awards were 165,000 tons. According to reports of the Department of Commerce in February 151 firms reported sales of 176,787 tons from which it was estimated that total bookings by all fabricating shops in February were close to 200,000 tons. In January 161 firms reporting had ordrs amounting to 168,336 tons, from which it was determined that total bookings by all fabricating shops in January were 190,000 tons. Estimating total orders booked in March at 190,000 tons, would give a total during the first quarter of 580,000 tons, equivalent to 77.3% of shop capacity.

March orders were indicated to have been slightly less than in February and about the same as those placed in January, the March bookings being equivalent to about 76% of shop capacity. The largest orders received by the fabricators last month came from building contracts. Including hotels, apartment houses, loft buildings and other commercial structures, the total being very close to 53,000 tons. The next largest orders came from public utilities calling for 34,000 tons. Railroads placed orders for bridges and other structural work calling for 26,000 tons. Oil companies placed orders for structural work, mainly for oil storage tanks, calling for 18,000 tons. Manufacturing plant extensions call for nearly 17,000 tons. Highway bridges required only about 5,000 tons and marine work, less than 2,000 tons, while miscellaneous work, not classified, called for about 12,000 tons.

Tonnage booked each month by 164 identical firms, with a capacity of 223,355 tons per month, is shown below,

together with the per cent. of shop capacity represented by these bookings.

For comparative purposes, the figures are also prorated to obtain an estimated total for the United States on a capacity of 250,000 tons per month.

1922	Actual Tonnage booked	per cent. of capacity	Estimated Total bookings
April ..	197,796	89	222,500
May ...	181,503	81	202,500
June ..	162,876	73	182,500
July ...	153,903	69	172,500
Aug. ...	152,253	68	170,000
Sept. ..	143,566	64	160,000
Oct. ...	128,315	58	145,000
Nov. ...	108,593	49	122,500
Dec. ...	130,082	58	145,000
1923			
Jan. ...	168,336*	76	190,000
Feb. ...	176,787†	80	200,000

* Reported by 161 firms with a capacity of 222,605 tons.

† Reported by 151 firms with a capacity of 219,955 tons.

Percentage of fabricated orders to total shop capacity.

	1922	1921	1920	1919	1918	1917
Jan.	40%	18%	75%	12%	53%	61½
Feb.	43½	14	95	12½	55½	59
Mar.	77	29	83½	17½	47	68
April	89	31	68	24½	64	61
May	81	28	61½	49	60	56½
June	73	37	50	65	56	47½
July	69	33½	50	74	116½	41½
Aug.	68	33	40	78½	57	38
Sept.	64	48	43	78½	60	29
Oct.	58	54	25½	77½	43	61½
Nov.	49	55	27½	69	27	77
Dec.	58	40	26	85	29	114
Av.	64.2	35	53¾	53½	55½	59½

1923—	
January	76
February	80
March, estimated	76

SCRAP

Scrap was mentioned early in this review, as it deserved to be, seeing that it has a record, in many general iron and steel market movements, of rounding a turn, upwards or downwards, before finished steel products. Scrap rounded its turn about the middle of March. Mills in various districts paid their highest prices for heavy melting steel in the first half of the month. Afterwards dealers were able to buy at prices giving them a good profit against their highest priced sales, but a loss against earlier sales, on which they were still short to a limited extent. Scrap began to come out more freely in various districts, including New England, which had been more or less snowbound. Mills are much less disposed to buy, evidently feeling that they can maintain steel production with their pig iron, the production of which has been proceeding very smoothly.

FERRO-ALLOYS

Early in March sales of British ferromanganese were made at $110 seaboard, duty paid, but very little was offered from abroad for shipment before July 1st. Before the middle of the month there were no British producers willing to sell under $115 seaboard for delivery over the last four months of the year. Domestic producers also advanced prices to $115 furnace for second half shipment. A few sales of spot alloy held over from previous importations were made at $120 seaboard. Subsequently small lots sold as high as $125 seaboard. Some sales for shipment after July were made at $120.00, but consumers were reluctant to pay the outside prices demanded and there were more urgent requests for shipments against contracts. British consumers generally at the end of the month were out of the market and domestic producers were indifferent about selling at $120 furnace.

Spiegeleisen which sold to a moderate extent early in March at $36.00 to $37.00 furnace for 19% to 21% alloy, was later advanced to $40.00 with sales. The largest domestic interest, having sold the output of its second furnace, was practically out of the market when the

IRON AND STEEL SCRAP PRICES

	Heavy melting steel. Pittsb.,	Phila.,	Chic.	No. 1 cast. Pitts.	Chic.*
Jan., '22	14.67	11.45	11.70	16.60	12.75
Feb. ...	14.25	11.50	11.75	16.25	12.80
Mar. ...	25.35	11.75	12.50	16.25	13.50
April ..	16.60	14.25	13.80	17.25	14.70
May ...	17.25	14.70	14.95	18.25	15.80
June ...	17.25	14.50	14.80	18.60	15.50
July ...	16.85	14.40	15.40	19.25	16.00
Aug. ...	17.45	14.75	16.00	19.35	17.25
Sept. ..	20.00	17.00	17.50	21.75	18.60
Oct. ...	21.00	18.35	18.65	24.00	19.60
Nov. ...	20.50	16.65	17.60	23.20	18.50
Dec. ...	20.40	16.70	17.50	22.75	18.35
Year ..	17.63	14.67	15.18	19.46	16.11
Jan., '23	22.00	20.85	19.30	23.50	20.40
Feb. ...	23.35	21.10	20.00	24.15	22.50
Mar. ...	25.30	35.25	23.45	26.25	24.75

* Per net ton.

month closed but the demand also was light. A few small lots of foreign spiegeleisen sold at $42.50 to $45.00 seaboard.

Sales of 50% ferro silicon were made in a small way at $95.00 to $97.00 per ton delivered, there having been an advance of $5.00 to $7.50 per ton during the month, but with large consumers mainly covered by contracts buying was confined to small lots. Consumers have been urgently pressing for deliveries against contracts.

Bessemer ferro-silicon and silvery iron were advanced sharply during the month.

COAL

About the only real flurry that developed in the coal trade during the past month was evident only on the eastern seaboard where there was a temporary period of renewed activity because of increased export inquiry. This ripple in the export market was caused by the fear of some foreign buyers that occupation of the Ruhr district would shorten their supply. While this condition has come about to some extent, the shortage in the Continental European countries has not been so severe that the rapidly rising prices on both coal and ocean freights from this side were justified. Largely because of the latter, the inquiry which developed about a month ago or more, and which for a time promised a lengthy stretch of prosperity for American coal exporters, began to dwindle again. Thus there is furnished an illustration of the shortsightedness of the average American coal exporter.

It appears that the rapid advance in prices at the Atlantic seaboard piers virtually "killed the goose," as the buyers of coal in foreign countries were not so frantic that they would again stand for being mulcted the way they were in the excited buying period in 1920. In the matter of prices at Hampton Roads for instance, the best steaming coals there, such as pool 1 jumped from a minimum of $6.00 a gross ton at the piers which was current in early February, to $7.50 and $7.75 per gross ton within four or five weeks. It is unfortunate for the American coal exporters that they are inclined to take advantage of the misfortune of the foreign consumers, because the attendant rises in vessel freights together with the coal advances, made the offers of American cargoes a little distasteful, and the coal prices have dropped back again to where $6.00 per gross ton will probably buy the best grades at the Hampton Roads piers when the order is firm in hand. Furthermore, inquiry from the other side has fallen off as noticeably as the actual selling.

When the inquiry was at its height, however, the high grade coking coals of high volatile content were also popular at about $1.00 below the prices of good steam coals for the reason that French and Belgian blast furnaces were forced to look elsewhere for their coke when supplies from the Ruhr were shut off. What remains of the present export activity is inquiry for coke, which has developed some actual exporting of coke to the other side on a fairly large scale. In fact, the piers at Philadelphia are now so congested that some factors in the trade are expecting the Pennsylvania Railroad to place an embargo against further shipments until some of the present accumulation has been cleared up.

The inquiry for coke shows no sign of diminishing at present, and will probably continue so long as furnaces on the other side have their supplies reduced by the cutting off of supplies from the Ruhr basin. At present, tidewater prices f.o.b. piers on various grades of coke, range from $10.00 to $13.50 according to grade, and c.i.f. prices at French Atlantic ports, or Rotterdam-Hamburg would be about $16.00 to $18.50 gross ton.

Thus, about the only bright spot in the coal trade generally for the past month, has been the export branch, since the industrial consuming trade has been comparatively quiet. Soft coal wholesalers as a rule look for considerable contracting during the month of March, so that the consumers will have their coal supplies lined up for the year beginning April 1st, which is the "official" beginning of the new "coal year."

This year, however, contracting has not been particularly heavy. In the first place, prices are not exactly in line with the ideas of the consumers. The best grades of Pennsylvania coals for instance, are held for $3.50 to $4.00 net ton at the mines. Other grades sell at $3.00 to $3.50, and the less desirable grades for $2.25 to $3.00. It is true that these prices are not quite so low

as the same coals have sold for in other recent seasons, but operators seem unwilling to shade the figures because of the uncertainty as to future car supply this feature of operation having been very unsatisfactory all Winter.

Therefore, operators, not knowing how future operating costs are going to be increased by car shortages, are standing pat on offers at the above prices. The volume of contracting, therefore, has not been so great so far as some wholesalers would like to see it. Nevertheless, there has been the usual amount of renewal business between coal and industrial firms whose relations have existed over a period of years. The spot market on industrial coals in extremely quiet in Pennsylvania, although the bituminous mining rate for the country is at present better than 10,000,000 net tons weekly.

CONNELLSVILLE COKE

A remarkable movement in second quarter Connellsville coke was completed by the middle of March, the total turnover being slightly over 300,000 tons a month, when all buyers were apparently satisfied, including regular merchant furnaces and certain steel works that buy coke to supplement their by-product supplies when they intend to run full. One contract was at $6.75, the great majority were at $7.00, a few were at $7.25 and one or two belated contracts were at $7.50. For one furnace coke was bought at $7.25 for second quarter and at $7.50 for third quarter. Subsequently it is reported, another interest bought separately for third quarter. Otherwise no third quarter business has been done, and consumers are now showing little interest .

PRODUCTION OF PIG IRON IN U. S. IN 1922

Statistics of American Iron and Steel Institute.

Production of Cold and Hot and Warm Blast Charcoal Pig Iron, 1918-1922.

Kinds of iron.	1918.	1919.	1920.	1921.	1922.
Cold blast	4,209	2,113	1,734	350	.....
Hot and warm blast	344,668	324,984	321,662	94,380	224,731
Total, gross tons	*348,877	327,097	323,396	94,730	224,731

* Includes small tonnage made withcharcoal and coke mixed in 1918.

Pig Iron Made for Sale or for Use of Makers in 1922.

Grade	For sale.	For maker's use.	Total. Gross tons.
Basic	1,198,106	12,643,261	13,841,367
Bessemer and low phosphorus	488,865	7,324,338	7,813,203
Foundry, including ferro-silicon	3,708,600	267,831	3,976,431
Malleable	894,837	156,658	1,051,495
Forge or mill	65,347	148,863	214,210
Ferromanganese	55,002	95,113	150,115
Spiegeleisen	43,548	29,895	73,443
All other grades	47.545	52,095	99,640
Total, gross tons	6,501,850	20,718,054	27,219,904

Production of Pig Iron by Grades, 1907-1922.

Years.	Basic.	Bessemer.	Foundry.	Malleable.	Forge.	All other.	Total. Gr. tons.
1907 ..	5,375,219	13,231,620	5,151,209	920,290	683,167	419,856	25,781,361
1908 ..	4,010,144	7,216 976	3,637,622	414,957	457,164	199,155	15,936,018
1909 ..	8,250,225	10,557,370	5,322,415	658,048	725,624	281,789	25,795,471
1910 ..	9,084,608	11,245,642	5,260,447	843,123	564,157	305,590	27,303,567
1911 ..	8,520,020	9,409,303	4,468,940	612,533	408,841	229,910	23,649,547
1912 ..	11,417,886	11,664,015	5,073,873	825,643	469,183	276,337	29,726,937
1913 ..	12,536,693	11,590,113	5,220,343	993,736	324,407	300,860	30,966,152
1914 ..	9,670,687	7,859,127	4,533,254	671,771	361,651	235,754	23,332,244
1915 ..	13,093,214	10,523,306	4,843,899	829,921	316,214	309,659	29,916,213
1916 ..	17,684,087	14,422,457	5,553,644	921,486	348,344	504,779	39,434,797
1917 ..	17,671,662	13,714,732	5,328,258	1,015,579	345,707	545,278	38,621,216
1918 ..	18,646,174	13,024,966	5,145,260	1,117,914	393,932	726,398	39,054,644
1919 ..	14,494,131	9,975,934	4,916,758	1,009,049	271,286	348,206	31,015,364
1920 ..	16,737,722	12,062,084	5,597,782	1,310,951	318,048	539,400	36,925,987
1921 ..	7,753,071	5,595,215	2,569,136	1,051,495	214,210	323,198	27,219,904
1922 ..	13,841,367	7,813,203	3,976,431	457,340	112,748	201,616	16,688,126

EXPORTS OF IRON AND STEEL PRODUCTS FROM THE U. S.

Value of tonnage and non-tonnage.

	*1923	*1922	1921
Feb.	14,865,590	12,950,603	101,205,061
Mar.	.....	18,836,718	67,870,739
April	.....	17,559,081	49,609,605
May	.....	17,749,475	41,365,886
June	.....	18,649,816	39,975,035
July	.....	14,611,858	27,639,787
Aug.	.....	13,963,749	27,647,816
Sept.	.....	14,380,851	26,740,228
Oct.	.....	14,626,411	29,706,437
Nov.	.....	14,249,434	28,543,142
Dec.	.....	16,668,116	29,502,448

* Excluding machinery.

1922..	$ 188,841,433	1916..	$871,372,322
1921..	607,427,146	1915..	390,897,123
1920..	1,112,904,802	1914..	199,861,684
1919..	968,575,142	1913..	293,934,160
1918..	1,035,291,736	1912..	289,128,420
1917..	1,240,984,979	1911..	249,656,411

Tonnage Lines.

(Gross tons.)

	1923	1922	1921	1920
Jan.	129,753	160,920	547,394	333,601
Feb.	.....	133,975	393,328	308,185
Mar.	.....	208,843	230,635	417,216
April	.....	198,830	162,592	395,120
May	.....	230,062	104,072	420,359
June	.....	212,295	119,081	402,707
July	.....	157,169	86,523	458,866
Aug.	.....	145,640	75,827	431,484
Sept.	.....	129,475	95,169	409,200
Oct.	.....	132,924	106,582	452,015
Nov.	.....	127,782	122,290	434,297
Dec.	.....	150,170	134,415	498,765

Yearly totals.

1922	1,986,297	1916	6,105,881
1921	2,213,042	1915	3,532,606
1920	4,961,851	1914	1,549,554
1919	4,239,837	1913	2,745,535
1918	5,338,037	1912	2,947,596
1917	6,441,760	1911	2,187,724

IMPORTS OF IRON ORE INTO THE UNITED STATES.

	1922	1921	1920	1919
Jan.	19,433	82,424	88,881	33,251
Feb.	10,016	47,466	100,105	28,039
Mar.	12,013	26,483	108,643	54,992
April	2,710	35,645	88,670	24,195
May	29,707	58,704	103,325	28,164
June	133,817	8,424	104,364	30,605
July	166,711	7,040	28,846	23,347
Aug.	160,173	24,570	174,169	32,117
Sept.	127,838	4,954	73,675	48,478
Oct.	*123,207	5,838	141,026	30,386
Nov.	165,648	12,065	139,854	89,933
Dec.	.....	2,155	117,898	52,954

Yearly totals.

1921	315,768	1915	1,341,281
1920	1,273,456	1914	1,350,588
1919	476,461	1913	2,594,770
1918	787,468	1912	2,104,576
1917	971,663	1911	1,811,732
1916	1,325,736		

* Sept. 22 to Oct. 31.

BITUMINOUS COAL PRODUCTION

(Net tons of 2,000 lbs.)

	1923.	1922.	1921.
Jan. ...	49,400,000	37,604,000	40,270,000
Mar. ..	47,100,000	50,167,000	30,392,000
Feb. ..	42,130,000	40,980,000	30,851,000
April		15,700,000	27,553,000
May		20,290,000	33,330,000
June		22,309,000	33,896,000
July		17,003,000	30,385,000
Aug.		27,358,000	34,538,000
Sept.		39,510,000	35,127,000
Oct.		45,141,000	43,733,000
Nov.		45,303,000	36,020,000
Dec.		44,500,000	30,975,000
Total		405,944,000	407,000,000

CONNELLSVILLE COKE.

Spot for prompt, per net ton f.o.b. ovens.

	— Furnace —			— Foundry —		
	1923.	1922.	1921.	1923.	1922.	1921
Jan.	8.30	2.85	5.10	9.25	4.00	6.75
Feb.	7.30	3.10	4.80	8.50	4.15	6.15
Mar.	7.35	3.38	4.43	8.60	4.50	5.63
Apr.	....	4.44	3.60	....	5.21	5.15
May	....	6.50	3.40	....	6.75	5.10
June	....	7.50	3.12	....	7.85	4.67
July	....	11.35	2.95	....	11.70	4.20
Aug.	....	13.35	2.95	....	15.00	4.20
Sept.	....	11.50	3.26	....	13.25	4.34
Oct.	....	9.70	3.35	....	11.90	4.40
Nov.	....	7.35	3.15	....	8.70	4.17
Dec.	....	7.75	2.90	....	8.15	4.00
Av.	....	7.40	3.58	....	8.43	4.90

BRITISH IRON AND STEEL OUTPUT.

Pig Iron—(Gross tons).

	1923	1922	1921
Jan.	567,900	288,000	642,100
Feb.	543,400	300,100	463,600
March ...	.....	389,800	386,000
April	.....	394,300	60,300
May	.....	407,900	13,600
June	.....	369,200	800
July	.....	399,100	10,200
Aug.	.....	411,700	94,200
Sept.	.....	430,300	158,300
Oct.	.....	481,500	235,500
Nov.	.....	493,900	271,800
Dec.	.....	533,700	275,000
Total ...	.....	4,899,500	2,611,400

Steel Ingots and Castings.

	1923	1922	1921
Jan.	624,300	327,500	493,400
Feb.	707,100	418,800	483,500
March ...	.....	549,400	359,100
April	.....	404,200	70,600
May	.....	462,300	5,700
June	.....	400,200	2,700
July	.....	473,100	117,200
Aug.	.....	520,800	434,100
Sept.	.....	555,900	429,300
Oct.	.....	565,200	405,400
Nov.	.....	600,800	442,800
Dec.	.....	546,100	381,000
Total ...	.....	5,831,900	3,624,800

COPPER IN MARCH

Copper was strong at the beginning of March, an advance of ⅛c being registered on the first day of the month, but buying lacked the vigor that was noted in February and for a few days the market hesitated at home with a reaction at London. Second hands became more anxious to sell and made some concessions in prices but without attracting many buyers. Exporters showed but small interest in the market except at substantially lower prices for several days, but toward the end of the first week larger sales were made to local exporters at the lower prices current resulting in a recovery of ¼c a pound, f.a.s. New York, as a result of higher prices for American electrolytic in Europe.

Export Surplus.

Confidence of producers was strengthened by the realization that the surplus in the hands of the Copper Export Association, originally 400,000,000 pounds, had been reduced to about 50,000,000 pounds. It was also claimed that commitments in hand would take up the additional surplus still available for foreign shipment. It was estimated that about one-third of the copper sold in Europe on American account in 1921 and 1922 came from the Copper Export Association's stock, the other two-thirds of foreign sales being supplied from current production.

Rise at London.

Throughout the second week of the month the market continued quiet at home with consumers awaiting developments and few orders being placed on account of foreign consumers, but on March 15th a stronger tone was developed. Speculative interests again took the lead with a sharp rise at London on the following day. The tone of the market here was strengthened by purchases of the Anaconda Copper Company to provide for needs of the American Brass Company, but such purchases were made judiciously and under rather than over 17c a pound.

Selling Campaign Mild.

The entire character of the market was changed on March 19th when producers' prices were advanced ⅛c to ¼c upon the report that large sales ha been made to domestic consumers quietly a few days previously. Brass manufacturers and other consumers in the Connecticut Valley were credited with having purchased 20,000,000 pounds of electrolytic at 16.87½c to 17.00c. This business was followed by some sales at 17.25c delivered and subsequently, about March 21st, domestic producers reported sales at 17.37½c. The selling campaign, however, lacked vigor with domestic consumers very conservative, placing orders for May, June and July shipment with more or less reserve. An effort to establish the market level at 17.50c at home failed of accomplishment, but a few sales were made in Europe at 17.50c c.i.f.

March Sales.

In the last ten days of the month the market was very quiet and prices were sustained with difficulty. A renewal of the buying movement for unwrought copper, expected by producers, did not develop, although there was considerable buying of wrought copper and brass at steadily advancing prices, in fact, the rise in finished products, ranging from ¾c to 1⅞c a pound, was conspicuously out of proportion to the advance in prices of wrought copper. It is doubtful that sales of refined copper in March aggregated much if any over 100,000,000 pounds and total sales during the first

COPPER PRICES IN MARCH

	— New York —		— London —		
Day	Lake.	Electro.	Cast.	Stand. £ s. d.	Electro. £ s. d.
1	17.12½	16.87½	16.50	73 7 6	80 10 0
2	17.25	16.87½	16.50	73 15 0	80 10 0
5	17.25	16.87½	16.50	73 5 0	81 0 0
6	17.25	16.87½	16.50	72 12 6	80 0 0
7	17.12½	16.62½	16.37½	71 7 6	79 10 0
8	17.12½	16.68¾	16.37½	72 7 6	80 15 0
9	17.12½	16.68¾	16.37½	72 7 6	80 10 0
12	17.12½	16.68¾	16.50	72 12 6	80 10 0
13	17.12½	16.68¾	16.50	72 10 0	80 10 0
14	17.12½	16.75	16.50	73 12 6	80 15 0
15	17.25	16.87½	16.68¾	74 5 0	81 15 0
16	17.25	17.00	16.68¾	75 7 6	82 10 0
19	17.30	17.25	16.87½	76 5 0	83 0 0
20	17.37½	17.25	16.87½	75 17 6	83 0 0
21	17.37½	17.25	16.87½	75 5 0	83 0 0
22	17.43¾	17.25	16.87½	74 17 6	83 0 0
23	17.43¾	17.25	16.87½	75 7 6	83 0 0
26	17.37½	17.12½	16.75	73 15 0	82 0 0
27	17.37½	17.00	16.75	73 5 0	81 10 0
28	17.37½	17.06¼	16.75	73 17 6	81 0 0
29	17.37½	17.12½	16.87½	74 17 6	82 10 0
High ...	17.50	17.25	16.87½	76 5 0	83 0 0
Low	17.00	16.62½	16.37½	71 7 6	79 10 0
Aver.	17.26	16.96	16.64	73 17 0	81 9 3

quarter were probably not over 350,000,000 or possibly 400,000,000 pounds. This includes export as well as domestic transactions.

First Quarter Exports.

Throughout March animation in the industry was more marked in deliveries against contracts than in new buying by either domestic or foreign consumers. Exports do not bear out the highly optimistic reports circulated early in the year. The indication is that February exports were less than those in January and January was under rather than over 70,000,000 pounds, although it had been claimed that January exports would amount to 85,000,000 pounds. March exports were probably under 60,000,000 pounds. First quarter exports are estimated conservatively at 192,000,000 pounds.

Large Imports.

Government reports of imports are still far in arrears and only recently has the Department of Commerce reported imports in November and December 1922. The November arrivals were about 75,000,000 pounds and the December arrivals about 65,000,000 pounds. Estimating January imports at 65,000,000 pounds, February at 60,000,000 and March at 75,000,000 pounds, total imports during the first quarter of this year were 200,000,000 pounds.

Production.

Output by the United States smelters since the first of the year has ranged from 115,000,000 to 125,000,000 pounds a month or a total of 360,000,000 pounds during the first quarter. This estimate is conservative. The actual output was probably larger. Refined output in the first quarter of this year is estimated 565,000,000 pounds, of which 200,000,000 pounds were probably produced in March.

Deliveries.

Deliveries into domestic consumption have ranged from 100,000,000 to 140,000,000 pounds a month, the total for the first quarter being estimated 340,000,000 pounds. Upon this basis, total deliveries into domestic and foreign consumption since the first of January have been a little over 532,000,000 pounds, against refined output of 565,-

Dallas Brass & Copper Co.

Manufacturers of

Brass and Copper Products

Prompt Mill Deliveries

Prompt Shipments From Warehouses

CLEVELAND CHICAGO DETROIT

000,000 pounds. It will probably be claimed, however, that March deliveries were in excess of 200,000,000 pounds. It seems quite evident, however, that there has been no further reduction of surplus stocks this year and possibly an increase. In the absence of official statistics, definite opinion must be held in abeyance. The impression is that production is steadily gaining upon consumption.

COPPER AND BRASS PRODUCTS.

Large deliveries against contracts for wrought copper and brass and a further sharp advance in prices were the main features of interest in March, but buying was also heavy, transactions being almost as large as in February. Shipments were record-breaking for a single month, exceeding average monthly deliveries during the war period. The advance in prices ranged from ¾c to 1⅞c a pound. The greatest activity was in copper and brass sheets. There were also heavy sales of copper wire. The latter demand subsided after the middle of the month. Buyers of finished products no doubt were stimulated to purchase by the upward tendency of prices, but it is remarkable that unwrought copper throughout the month advanced only ½c a pound and held this advance with some difficulty.

Price Revisions.

On March 3rd the American Brass Company announced an advance of ¼c a pound on copper and brass products with the exception of brazed tubing—brass, copper and commercial bronze—which was advanced 1c a pound while seamless tubing was unchanged. On March 16th a second revision of prices was made covering seamless high brass tubing which was up ½c and bronze and low brass tubing which was advanced ¼c a pound. On March 20th the largest interest again advanced prices of all copper products ½c a pound and brass products ⅜c a pound, effective immediately. Copper wire and seamless copper and brass tubing remained unchanged.

A fourth revision of prices was made March 22nd when seamless brass and copper tubing was advanced ½c a pound, effective at once, while other products remained unchanged. The fifth revision was announced late March 29th

LAKE COPPER PRICES

Average prices in New York

	1923.	1922.	1921.	1920.	1919.
Jan.	14.92	13.76	13.53	19.76	21.75
Feb.	15.76	13.24	13.33	19.09	17.87
Mar.	17.26	13.03	12.58	18.87	15.48
April	.....	12.91	12.89	19.05	15.73
May	.....	13.42	13.12	18.85	16.30
June	.....	13.97	13.04	18.55	17.93
July	.....	14.07	12.75	18.83	22.08
Aug.	.....	14.09	12.11	18.72	22.96
Sept.	.....	14.19	12.23	18.53	22.48
Oct.	.....	14.16	13.01	16.87	21.94
Nov.	.....	14.07	13.30	14.97	20.49
Dec.	.....	14.46	13.80	14.01	18.88
Average	.....	13.78	12.98	18.01	19.49

Annual Averages.

1918	24.68	1913	15.70
1917	29.18	1912	16.58
1916	28.17	1911	12.71
1915	17.64	1910	13.12
1914	13.61	1909	13.39

ELECTROLYTIC COPPER PRICES

Average prices in New York

	1923.	1922.	1921.	1920.	1919.
Jan.	14.66	13.60	12.85	19.02	20.00
Feb.	15.50	12.97	12.79	18.61	16.91
Mar.	16.95	12.84	12.23	18.36	15.01
April	.....	12.71	12.54	18.54	15.40
May	.....	13.29	12.83	18.28	16.01
June	.....	13.71	12.76	17.97	17.65
July	.....	13.90	12.35	18.61	21.71
Aug.	.....	13.96	11.76	18.44	22.22
Sept.	.....	13.88	12.10	18.04	21.95
Oct.	.....	13.80	12.75	16.30	21.50
Nov.	.....	13.79	13.16	14.39	19.96
Dec.	.....	14.22	13.67	13.48	18.48
Average	.....	13.55	12.65	17.50	18.90

Annual Averages.

1918	24.68	1913	15.52
1917	29.19	1912	16.48
1916	28.46	1911	12.55
1915	17.47	1910	12.88
1914	13.31	1909	13.11

CASTING COPPER PRICES

Average prices in New York

	1923.	1922.	1921.	1920.	1919.
Jan.	14.30	12.96	12.61	18.81	18.48
Feb.	15.15	12.61	12.45	18.21	16.45
Mar.	16.64	12.54	11.83	18.11	14.82
April	.....	12.46	11.82	18.40	15.06
May	.....	12.84	12.24	18.16	15.49
June	.....	13.33	12.08	17.65	17.17
July	.....	13.34	11.68	18.12	21.10
Aug.	.....	13.43	11.43	18.00	21.71
Sept.	.....	13.39	11.75	17.76	21.28
Oct.	.....	13.39	12.43	16.01	20.66
Nov.	.....	13.40	12.53	14.12	19.37
Dec.	.....	13.81	12.97	13.12	18.21
Average	.....	13.13	12.15	17.21	18.32

Annual Averages.

1918	24.68	1914	13.18
1917	27.64	1913	15.33
1916	26.51	1912	16.29
1915	16.76	1911	12.42

when an advance of ¼c a pound was established on copper and brass products, including copper in sheets and rolls, copper bottoms, high brass sheets, wire and rods, low brass sheets, wire and rods, commercial bronze sheets and rods, commercial bronze and gilding wire, brazed tubing—brass, copper and commercial bronze. Tobin bronze sheets and rods and yellow metal sheets and rods were also advanced ¼c a pound, effective immediately. All of the independent producers of wrought copper, brass and bronze promptly followed the lead of the American Brass Company.

Total Advance ¾c to 1⅞c.

The result of these various revisions throughout the month was a total advance of ¾c per pound on copper wire and copper rods; 1c a pound on copper sheets, copper in rolls and copper bottoms; ⅞c per pound on high brass sheets, wire and rods, low brass sheets, wire and rods, commercial bronze sheets, commercial bronze and gilding wire, commercial bronze rods, naval bronze rods, and tobin bronze rods and sheets; brazed tubing—brass, copper and commercial bronze—1⅞c per pound; nickel silver, ¾c; yellow metal dimension sheets, yellow metal sheathing and nails and yellow metal rods ⅞c; seamless high brass tubing, 1c; seamless low brass tubing, ¾c; seamless copper tubing, ½c; seamless commercial bronze tubing, 1c to 1¼c; and admiralty 1c per pound.

EXPORTS OF COPPER.

As compiled by the New York Metal Exchange from Custom House returns, in tons of 2,240 lbs.

	1922.	1921.	1920.	1919.
Jan.	24,679	24,068	21,804	35,343
Feb.	22,910	27,748	25,700	17,937
Mar.	35,851	17,151	39,236	12,036
April	28,367	18,397	28,644	10,272
May	27,894	15,736	37,090	10,489
June	29,191	22,339	25,581	13,183
July	28,584	22,774	20,430	21,525
Aug.	26,889	19,110	20,121	23,530
Sept.	25,144	28,343	10,751	29,093
Oct.	22,681	22,934	10,073	21,793
Nov.	24,727	32,407	16,954	14,470
Dec.	22,201	27,394	18,304	17,498
Total	319,118	278,401	274,688	227,169

Annual Totals.

1918	328,844	1913	382,810
1917	493,256	1912	327,965
1916	327,310	1911	336,801
1915	270,704	1910	301,935
1914	360,229	1909	301,657

BRASS AND COPPER PRODUCTS.

The last two price lists issued follow:

COPPER PRODUCTS.

	Mar. 20	Mar. 29
Sheet copper	25¼	25½
Copper bottoms	33¾	34
Copper in rolls	23¾	24
Brush copper	26¼	26½
Sawed copper	26	26¼
Drawn copper shapes .	23¾	24
Commutator copper ...	25	25¼

BRASS PRODUCTS.

Sheet Metal.

High brass	21½	21¾
Low brass	23¼	23½
Rich low brass	23¾	24
Commercial bronze ..	25⅛	25⅜
Common gilding	25⅛	25⅜
Best spring drawing and spinning brass	22½	22¾

Wire.

High brass	22	22¼
Low brass	23¾	24
Commercial bronze and gilding	25⅝	25⅞
Best spring and brazing brass	23	23¼

Rods.

High brass (free turning)	19¾	20
Low brass	24	24¼
Commercial bronze	25⅞	26⅛

Brazed Tubes.

Brass	29¼	29¾
Copper and commercial bronze	34⅝	35⅛
Open seam brass	29¼	29¾
Open seam copper and commercial bronze ..	34⅝	35⅛

Seamless Tubes.

	Mar. 16	Mar. 22
High brass	26	26½
Low brass	28	28½
Commercial bronze ...	29	29½
Copper	27½	28

NICKEL SILVER.

	Mar. 20	Mar. 29
10% grade A sheet metal	28½	28¾
15% " " " "	29¾	30
18% " " " "	30¾	31
25% " " " "	41	41¼
5% grade B sheet metal	26½	26¾
10% " " " "	27¾	28
12% " " " "	28¾	29
15% " " " "	29¼	29½
18% " " " "	30¼	30½
25% " " " "	40½	40¾
5% wire and rod	28½	28¾
10% " " "	31¼	31½
12% " " "	33	33¼
15% " " "	34¾	35
18% " " "	37¾	38

Sheet Demand Heavy.

In the last ten days of the month there was a pronounced falling-off in business, the late advances seeming to check rather than increase buying, but not until further substantial orders had been placed by public utilities, electrical equipment makers, telephone and telegraph companies and other large consumers. The demand for sheets, as previously noted, was especially heavy and at the close of the month sheet mills were booked ahead twelve weeks. Continued activity in construction of buildings and manufacturing plants was largely responsible for large sales of sheets but there was also unusual activity in cold rolled sheets used in the manufacture of copper utensils. Large silversmiths also placed substantial orders.

Plant Operations.

Plant operations continued to increase and in some lines two shifts were utilized. In all departments output was limited only by labor supply but it is notable that although working forces were probably 75% to 80% of the number employed in war time, output was fully as great, indicating an increase of 20% to 25% in labor efficiency. It is not surprising that with the sharp advances made in prices in the last two months that labor should demand increased wages. Two advances were made in the pay to common labor, each 2½c an hour, equivalent to 5%. On April 1st wages paid to common labor were advanced to 40c an hour.

In other lines than sheets mill capacity has been sold equivalent to six to eight weeks output at the present rate of operation. Hardware manufacturers continued prominent purchasers of bronze and brass and spinners were prominent among buyers of copper and brass sheets.

IMPORTS OF COPPER.

As compiled by the New York Metal Exchange and reduced to fine copper, in tons of 2,240 lbs.

	1922.	1921.	1920.	1919.
Jan.	5,500	17,500	16,500	9,000
Feb.	10,000	18,000	20,000	21,000
Mar.	15,000	10 000	17,500	27,000
April	16,000	15,500	12,000	14,500
May	12,000	7.000	23,000	10,500
June	19,000	9.000	22,000	14,000
July	19,500	14.000	12,000	15,000
Aug.	21,000	10,000	13,000	12,000
Sept.	25,000	10,500	12,500	16,000
Oct.	.....	14,500	14,500	12,000
Nov.	.....	11,000	16,000	23,000
Dec.	.....	14,000	17,500	13,000

Annual Totals.

1918	251,000		
1917	242,000	1912	179,000
1916	199,000	1911	152,000
1915	137,500	1910	153,000
1914	134,000	1909	140,000
1913	181,000	1908	97,700

TIN IN MARCH

The tin market in March continued to exhibit the same activity as during February, with a large speculative turnover each day in the London market. In the New York market trading in and out between dealers also reached a large volume, but the purchases by consumers were smaller than for several months lately, they having previously bought very heavily both for early and future requirements. Whereas in February, price advances were virtually continuous, without reactions, from around 40.00c for Straits to 46.62½c, the month of March showed irregularity. In some cases sharp advances were followed by sharp declines, but these declines to a great extent very quickly recovered. The effect of this irregularity has been to unsettle the minds of the trade, especially consumers, as to the situation.

Opening at 47.00c, the market for spot Straits advanced steadily until 51.37½c had been reached by the middle of the month. From this figure the market declined to 48.62½c by March 21st, recovering to 49.50c and breaking on March 26th 1¾c a pound to 47.75c, the closing price for the month being 47.87½c or less than one cent a pound above the opening price, but nearly four cents a pound below the highest point touched during the month. At this closing price of 47.87½c, the market for Straits tin is about 11.50c a pound above the average price for the ten years preceding the Great War.

The London market opened at £211 10s for spot Standard, advanced to £234 5s by March 13th, declined the next day to £224 15s, recovered the following day to £231 15s, declined to £225 10s by March 19th, and £219 10s by March 21st, recovered to £223 15s the following day, declined to £213 on March 27th and recovered to £216 the following day, when London closed for the Easter holidays.

MONTHLY TIN STATISTICS

As published by the New York Metal Exchange in tons of 2,240 pounds:

	Mar. 1923.	Feb. 1923.	Mar. 1922.
Supplies—			
Straits	6,020	4,655	5,168
Australian	160	200	25
Banka and Billiton	1,077	1,564	1,337
Chinese	510	772	338
Standard	1,293	1,451	488
	9,060	8,642	7,356
Deliveries—			
U. K. all kinds	1,468	1,518	2,713
U. S. A. all kinds	6,634	6,185	6,040
Continent, all kinds	1,493	1,547	1,274
	9,595	9,250	10,027
Decrease in total visible supply	535	765	2,671
Stocks—			
U. K. All kinds	4,973	6,420	6,604
U. S. A. all kinds	4,067	2,054	8,086
Continent, all kinds	2,345	2,463	3,861
	11,385	10,937	18,551
Afloat—			
U. K. all kinds	734	1,219	2,289
U. S. A. all kinds	10,513	11,541	6,090
Continent, all kinds	1,990	1,460	1,228
	13,237	14,220	9,607
Tot. visible supply	24,622	25,157	23,158

STRAITS TIN PRICES.

Average prices of Straits tin for prompt delivery in New York.

	1923.	1922.	1921.	1920.	1919.
Jan.	39.17	32.11	36.11	62.89	72.50
Feb.	42.03	30.82	32.47	60.00	72.00
Mar.	48.65	29.17	28.85	61.99	71.75
April		30.65	30.41	62.20	72.26
May		30.97	32.52	55.07	71.94
June		31.54	29.57	48.62	71.20
July		31.82	27.69	49.37	70.39
Aug.		32.43	26.40	47.69	63.78
Sept.		32.40	26.73	44.62	55.81
Oct.		34.64	27.74	40.64	55.62
Nov.		36.72	29.02	37.02	54.17
Dec.		37.68	32.49	34.15	55.06
Average		32.58	30.00	50.36	65.54

Yearly Averages.

1919	65.54	1914	35.70
1918	86.80	1913	44.32
1917	61.65	1912	46.43
1916	43.48	1911	42.68
1915	38.66	1910	34.27

TIN DELIVERIES IN UNITED STATES

Monthly deliveries of tin in United States, exclusive of domestic refined tin, in tons of 2,240 pounds.

	†1923.	1922.	1921.	1920.	1919.
Jan.	6,625	4,275	1,555	3,910	1,850
Feb.	6,185	3,215	1,585	5,200	2,450
Mar.	6,634	6,030	1,683	5,130	2,070
April		4,995	1,590	3,305	36
May		4,740	1,225	3,550	20
June		5,130	1,590	6,500	68
July		4,590	1,525	5,530	132
Aug.		4,150	3,320	3,745	4,345
Sept.		5,050	2,605	4,860	4,825
Oct.		5,603	2,280	3,415	2,875
Nov.		4,812	3,250	3,395	6,665
Dec.		4,870	3,710	2,580	6,965
Total		57,460	25,918	51,120	32,301

VISIBLE SUPPLY OF TIN

World's visible supply of tin at end of each month in tons of 2,240 pounds.

	†1923.	1922.	1921.	1920.
Jan.	25,765	26,216	18,994	21,056
Feb	25,157	25,047	17,074	21,586
Mar.	24,622	22,353	16,073	18,305
April		22,017	15,670	19,342
May		22,910	18,352	20,976
June		23,566	17,968	18,851
July		21,502	20,316	18,546
Aug.		24,176*	19,358	19,858
Sept.		22,879*	21,189	18,996
Oct.		22,902	23,349	19,964
Nov.		25,286	22,806	19,823
Dec.		24,930	25,220	19,410
Average		23,649	19,697	19,726

* Includes current shipments of Banka and Chinese to U. S.

Annual Averages.

1919	12,890	1914	14,907
1918	13,894	1913	12,377
1917	18,803	1912	13,207
1916	18,585	1911	16,404
1915	15,208	1910	18,815

TIN SHIPMENTS FROM STRAITS

(Tons of 2,240 lbs.)

	†1923.	1922.	1921.	1920.	1919.
Jan.	6,255	5,515	1,055	3,910	3,340
Feb.	4,655	3,640	240	4,810	2,860
Mar.	6,020	4,985	915	2,795	2,254
April		5,350	1,800	3,872	1,127
May		6,420	3,667	4,930	1,704
June		6,505	1,425	4,261	1,629
July		4,035	3,975	3,865	7,302
Aug.		5,855	3,165	3,798	8,829
Sept.		4,050	5,300	4,529	5,465
Oct.		5,650	4,525	3,340	4,431
Nov.		6,145	4,065	2,630	4,135
Dec.		4,635	5,920	2,225	6,677
Total		62,785	36,052	44,965	49,763

Annual Totals

1918	*55,000	1914	63,093
1917	62,366	1913	62,550
1916	61,587	1912	59,318
1915	66,517	1911	55,470

† Note—London Metal Exchange statistics. * Estimated.

During the early part of the month the situation was very strained, and among the rumors current were that some of the bull interests in the London market had to receive more tin than could possibly be delivered by the "shorts". The reaction that took place in price later showed that this was not the case. There is no doubt, however, that there was a heavy "short" interest in the market which had to be covered at heavy losses, and the situation was greatly complicated by the maturing of previous options sold, right to call, right to double, etc. Some of the leading bulls in London were free sellers in the closing week of the month and their attitude regarding the future is very much in doubt. It is considered that it may be part of the program of the bull party abroad to temporarily depress the market in order to encourage outside liquidation, but the sharp declines at times even when as quickly recovered, have done a good deal to destroy confidence on this side, and a renewed advance is not likely to receive general support, even from the American traders. Whether consumers will buy should the market decline, remains to be seen. At present they are in a very comfortable position by reason of the large deliveries during the month of March—over 6,600 tons—coming on top of 6,100 tons during February and 6,600 tons during January. The substantial advance that has taken place in tin during the past few months was based on the enormous purchases for requirements made by our consumers.

As the price of tin a little over two months ago was 38.50c, the question arises whether the advance since then, of nearly ten cents per pound, has not fully discounted the enormous American consumption of tin, and the purchases to provide for same and which has been so sensationally exploited by the London speculators, especially as by reason of conditions on the Continent, and the good supplies that have come from sources of supply, the visible supply of the world has shown but a slight decrease.

The surplus stocks held by the Malay States and Dutch Government and estimated at some 14,000 tons, remain still unsold.

The consumption of tin in this country stands at a record during the past few months but it seems impossible to believe that such large deliveries into consumption can be continued beyond another month. As there are such large quantities en route to this country, the deliveries in April are sure to be very large, but after April, instead of America, as has been lately the case, taking nearly all the Straits tin available, more normal conditions are expected, in which case the depletion of Straits tin in London will be rectified. This depletion has made Straits tin command, during the month, a premium of some £10 per ton over Standard, and has helped the London bulls in the punishment they have been able to give the short interests there.

The American deliveries of foreign tin during March amounted to 6,634 tons, as follows:

	Tons.
Atlantic ports	6,300
Pacific ports	334
Total	6,634

The deliveries for the first quarter of the year total 19,444 tons and were not nearly 50% in excess of the corresponding period a year ago, but were greater by 3,533 tons than the previous high record established in 1917. Comparative figures for the past ten years are furnished below:

Jan.-Mar.	Tons.	Jan.-Mar.	Tons.
1923	19,444	1918	13,191
1922	13,520	1917	15,911
1921	4,823	1916	15,566
1920	14,240	1915	8,875
1919	6,370	1914	11,350

Deliveries are at the rate of 77,776 tons per annum as against the record of 58,339 tons in 1918. However, it is not to be expected that this rate will

TIN PRICES in MARCH

Day	New York Straits	New York 99%.	London Stand. £ s. d.	London Straits. £ s. d.	Singapore Straits. £ s. d.
1	46.87½	45.75	211 10 0	219 10 0	218 0 0
2	46.25	45.00	208 10 0	216 10 0	220 0 0
5	46.75	45.50	208 17 6	216 17 6	219 0 0
6	47.25	45.75	211 15 0	219 15 0	219 7 6
7	47.12½	45.50	212 10 0	220 10 0	223 0 0
8	47.37½	45.75	213 15 0	221 15 0	223 0 0
9	48.00	46.25	217 5 0	225 5 0	224 0 0
12	49.50	48.00	224 10 0	232 0 0	226 0 0
13	51.25	49.75	234 5 0	241 15 0	233 0 0
14	50.00	47.87½	224 15 0	231 15 0	239 10 0
15	51.50	49.50	231 15 0	239 5 0	236 0 0
16	51.37½	49.50	232 0 0	239 0 0	240 5 0
19	50.25	48.25	225 10 0	233 0 0	240 5 0
20	49.37½	47.75	222 17 6	230 7 6	235 5 0
21	48.62½	47.00	219 10 0	227 0 0	231 5 0
22	49.50	47.75	223 15 0	231 5 0	228 10 0
23	49.37½	47.50	224 0 0	231 10 0	223 15 0
26	47.75	45.75	216 15 0	224 15 0	231 15 0
27	47.37½	45.12½	213 0 0	221 10 0	224 15 0
28	47.87½	46.00	216 0 0	226 0 0	223 5 0
29	48.25	46.37½	219 0 0	229 0 0	225 0 0
High	51.50	49.75	232 0 0	241 15 0	240 5 0
Low	46.25	45.00	208 10 0	216 10 0	218 0 0
Aver.	48.65	46.93	219 11 2	227 10 9	... .. .

be maintained for it is in excess of actual consumption, large as it is, and represents the precautionary measures taken by consumers to carry a large reserve of tin at their works.

Monthly deliveries of tin in United States, exclusive of domestic refined tin, in tons of 2,240 pounds.

	1923.	1922.	1921.	1920.	1919.
Jan. ..	6,625	4,275	1,555	3,910	1,850
Feb. ...	6,185	3,215	1,585	5,200	2,450
Mar. ..	6,634	6,030	1,683	5,130	2,070
April ..	....	4,995	1,590	3,305	36
May ...	....	4,740	1,225	3,550	20
June ..	....	5,130	1,590	6,500	68
July ...	....	4,590	1,525	5,530	132
Aug. ...	....	5,150	3,320	3,745	4,345
Sept. ..	....	5,050	2,605	4,860	4,825
Oct. ...	....	5,603	2,280	3,415	2,875
Nov. ...	....	4,812	3,250	3,395	6,665
Dec. ...	....	4,870	3,710	2,580	6,965
Total ..	....	57,460	25,918	51,120	32,301

American Stocks March 31st.

In spite of the large deliveries the stocks of tin in warehouses and on dock in the port of New York on March 31st, amounted to 4,067 tons, of which 1,057 tons were in store and 3,010 tons on dock or landing.

LEAD AND ZINC PRICES IN MARCH

Day	LEAD New York *	LEAD New York †	LEAD St. Louis†	LEAD London £ s d	ZINC New York	ZINC St. Louis§	ZINC London £ s d
1	8.15	8.35	8.32½	29 2 6	8.12½	7.77½	37 2 6
2	8.25	8.45	8.40	29 5 0	8.20	7.85	37 0 0
3	8.25	8.45	8.40	.. .. .	....	....	.. .. .
5	8.25	8.55	8.50	29 7 6	8.22½	7.87½	36 17 6
6	8.25	8.55	8.50	29 12 6	8.20	7.85	36 12 6
7	8.25	8.55	8.50	29 7 6	8.17½	7.82½	36 12 6
8	8.25	8.55	8.42½	29 7 6	8.15	7.80	36 12 6
9	8.25	8.55	8.42½	29 7 6	8.10	7.75	36 15 0
10	8.25	8.55	8.42½	.. .. .	....	....	.. .. .
12	8.25	8.45	8.42½	29 2 6	8.12½	7.77½	36 7 6
13	8.25	8.30	8.30	29 0 0	8.17½	7.82½	36 17 6
14	8.25	8.30	8.30	28 12 6	8.22½	7.87½	37 0 0
15	8.25	8.30	8.30	28 17 6	8.30	7.95	37 12 6
16	8.25	8.30	8.30	28 15 0	8.35	8.00	37 15 0
17	8.25	8.30	8.30	.. .. .	....	....	.. .. .
19	8.25	8.30	8.25	28 15 0	8.35	8.00	37 5 0
20	8.25	8.30	8.25	29 0 0	8.35	8.00	37 7 6
21	8.25	8.30	8.25	28 12 6	8.35	8.00	36 17 6
22	8.25	8.30	8.25	28 7 6	8.32½	7.97½	36 15 0
23	8.25	8.30	8.25	28 10 0	8.32½	7.97½	36 10 0
24	8.25	8.30	8.25	.. .. .	....	....	.. .. .
26	8.25	8.62½	8.25	27 15 0	8.25	7.90	35 17 6
27	8.25	8.62½	8.25	27 15 0	8.15	7.80	35 5 0
28	8.25	8.62½	8.25	28 5 0	8.15	7.80	35 12 6
29	8.25	8.62½	8.25	28 5 0	8.07½	7.72½	36 7 6
30	8.25	8.62½	8.25	.. .. .	....	....	.. .. .
31	8.25	8.62½	8.25	.. .. .	.. .	....	.. .. .
High	8.25	8.75	8.50	29 12 6	8.35	8.00	37 15 0
Low	8.15	8.25	8.25	27 15 0	8.05	7.70	35 5 0
Av.	8.25	8.45	8.33	28 16 4	8.22	7.87	36 14 5

* A. S. & R. price.
† Outside market. § Prime Western.

LEAD IN MARCH

There was no let up during March in the heavy consumption of lead in this country, and at the end of the month the prospects for its continuance were still very good in all the principal consuming lines.

There was evidence, however, of increasing supplies, particularly in the middle west. Prominent smelters during the latter half of March have been able to offer prompt shipment from Federal and the spot market for Federal lead, so long practically narrowed to one interest, was less closely controlled. Whereas, spot lead early in March was bringing 8.55c E. St. Louis basis, it was obtainable at the end of the month at 8.20c. Coincidently producers were able to offer surplus unsold tonnages of April shipment also, whereas previously their bookings for weeks ahead had taken all the output that could be counted on.

This freer condition was regarded with satisfaction by the producers, as tending to check further undue inflation. But it is probably too early yet to look for any considerable reduction in price, in the face of continued heavy consuming needs.

The condition of supply in the New York district on the other hand throughout March was very stringent, spot stocks being scarce, and considerable lead was shipped from the west to this market incurring the freight of 35.00c per 100 lbs. over and above the E. St. Louis price.

The American Smelting & Refining Company's price was advanced on March 1st from 8.10c to 8.15c New York, and again on March 2nd to 8.25c, but remained unchanged thereafter throughout the month.

Foreign output has not expanded to any marked extent except in Mexico, which country is reported to be now producing about 20,000 tons per month. In 1920, when an average price at New York of over 8.00c prevailed, the Mexican production was only 92,788 tons for the year. Spain and Australia are still handicapped by labor troubles.

The London price which was £29 2s 6d at the beginning of March, fluctuated over a narrow range, closing at about £1 lower, both prompts and futures being £28 5s, on March 31st.

LEAD STATISTICS

The following statistics on the lead industry in the United States, compiled by C. E. Siebenthal, and A. Stoll, show the status of the industry in 1922 with comparative figures for 1920—1921.

Production of Refined Primary Lead in the United States

	1920. (Short tons)	1921 (Short tons)	1922. (Short tons)
Domestic desilverized lead	220,327	187,962	185,191
Domestic soft lead	189,854	157,513	209,250
Domestic desilvered soft lead	66,668	52,747	74,305
	476,849	398,222	468,746
Foreign desilverized lead	52,808	50,367	63,916
Total refined primary lead	529,657	448,589	532,662
Antimonial lead	12,535	10,064	8,075

Apparent Consumption of Refined Primary Lead in the United States.

(Refinery Stocks Disregarded.)

Supply:			
Stock in bonded warehouse Jan. 1st	234	1,322	347
Imports of pigs, bars, and old	35,719	31,301	3,551
Production	529,657	448,589	532,662
	565,610	481,212	536,560
Withdrawals:			
Exports of foreign lead from warehouse	17,363	25,000	32,355
In manufactures, with benefit of drawback	6,175	9,369	5,637
Exports of domestic lead	2,730	1,624	5,823
Stock in bonded warehouse Dec. 31st	1,322	347	* .....
	27,590	36,340	43,855
Apparent consumption	538,020	444,872	492,705
Lead content of ore and bullion in bonded warehouse, Dec. 31st**	51,220	19,186	* .....
Average selling price in cents per pound	8.0	4.5	5.5

*Figures not available. **Some part of this may have been smelted and refined and thus be included in the quantities given above as "Foreign desilverized lead."

LEAD PRICES, ST. LOUIS.

Average Prices, East St. Louis Basis.

	1923.	1922.	1921.	1920.	1919.
Jan.	7.64	4.40	4.78	8.32	5.36
Feb.	8.16	4.40	4.29	8.62	4.83
Mar.	8.33	4.43	4.03	8.93	5.01
April	....	4.97	4.30	8.71	4.87
May	....	5.30	4.82	8.52	4.80
June	....	5.58	4.34	8.36	5.06
July	....	5.45	4.28	8.58	5.42
Aug.	....	5.55	4.23	8.89	5.60
Sept.	....	5.90	4.41	8.23	5.81
Oct.	....	6.36	4.47	7.08	6.22
Nov.	....	6.88	4.38	6.16	6.68
Dec.	....	6.99	4.40	4.75	6.96
Year	....	5.52	4.39	7.93	5.55

Annual Averages

1918	7.25	1913	4.26
1917	8.92	1912	4.38
1916	6.80	1911	4.31
1915	4.57	1910	4.33
1914	3.74	1909	4.10

LEAD PRICE CHANGES.

The American Smelting & Refining Company's changes in the base price of lead since the beginning of 1922 are given below:

1922—		" 27	6.35
Opening	4.70	Oct. 6	6.50
Mar. 30	4.80	Nov. 1	6.75
April 3	4.90	" 2	7.00
" 7	5.00	" 24	7.10
" 20	5.10	Dec. 19	7.25
" 24	5.25	1923—	
May 16	5.35	Jan. 9	7.40
" 18	5.50	" 10	7.50
" 29	5.65	" 22	7.75
June 7	5.75	" 23	8.00
Aug. 21	5.90	Feb. 23	8.10
Sept. 14	6.00	Mar. 1	8.15
" 19	6.10	" 2	8.25
" 22	6.25		

ZINC IN MARCH

The market for slab zinc in March was not characterized by great activity, though it was a month of large domestic consumption in spite of the fact that galvanizing operations with the sheet mills have not been as heavy in proportion as their business in other steel products. Galvanizers had for the most part covered their requirements previously, and were cautious as to further purchases for future delivery at the existing levels, but they called for early shipment of their contract quotas for March, and in many cases these did not meet the needs that developed, as there was throughout the month a very fair amount of buying for prompt shipment.

The operations of the brass mills were likewise large. but likewise well covered by previous contracts, though Brass Special zinc for quick delivery was at times in urgent need, and commanded more than the usual premium over prime western.

The American Zinc Institute statistics for February showed a reduction in smelters' stocks during that month of 5,710 tons, which left only 10,864 tons on hand February 28th. This was largely the result of heavy domestic deliveries, for of the total shipments of 48,153 tons, no less than 45,517 tons were for domestic account.

The shipments during February for export fell off as compared with the two preceding months, 2,636 tons for export being shipped as compared with 7,954 tons in January and 10,246 tons in December.

Production in February was 42,443 tons as compared with 46,317 in January but the smaller output was partly accounted for by the smaller number of working days, as the number of retorts in operation at the end of February were 86,931, as against 84,131 at the end of January.

Prices reached the highest point touched since the upward movement began, prime western E. St. Louis basis, a ing for a time at 8.00c E. St. Louis basis, the result largely of the strong statistical position as to stocks on hand. But this level was not maintained, and towards the end of March the price sagged, closing at 7.70c to 7.75c for prime Western E. St. Louis basis, a shade below the figure at which the month opened.

The easing off in price was largely attributable to the steady decline in London. That market on March 1st was at £37 2s 6d, but dropped by gradual stages, reaching £35 5s during the last week, with a recovery of about £1 in the last two days of March.

The drop in the foreign price brought that market so low in comparison with our own that it offered an opportunity for a profitable arbitrage business for exporters, who had future American zinc contracted for i.e., by selling here and covering in the London market.

In consequence of the adverse foreign prices, there was little or no export buying during March. But it is considered probable that the foreign need of American product will recur, as continental output appears still inadequate the Belgian production for February being only 11,340 tons. Lately there has

U. S. ZINC STATISTICS.

From the monthly reports of the American Zinc Institute, in tons of 2,000 lbs.

	Production		Deliveries	
	1923.	1922.	1923.	1922.
Jan. ..	23,706	25,916	24,636	21,021
Jan. ..	46,317	23,706	47,995	24,636
Feb. ..	42,443	22,513	48,153	24,067
Mar. ..	.....	26,532	.....	30,394
April .	.....	25,506	.....	34,040
May ..	.....	27,419	.....	38,738
June ..	.....	28,547	.....	39,380
July ..	.....	31,917	.....	32,875
Aug. ..	.....	31,423	.....	38,412
Sept. ..	.....	33,134	.....	35,957
Oct. ..	.....	39,940	.....	40,703
Nov. ..	.....	40,200	.....	38,746
Dec. ..	.....	42,841	.....	44,086
Total	.....	373,678	.....	422,034

	Stocks at Smelters*		Retorts In Operation*	
	1923.	1922.	1923.	1922.
Jan. ..	16,574	65,678	84,131	44,457
Feb. ..	10,864	64,124	86,931	43,357
Mar. ..	.....	60,262	.....	45,373
April .	.....	51,728	.....	42,773
May ..	.....	40,409	.....	48,765
June ..	.....	29,576	.....	52,677
July ..	.....	28,618	.....	54,909
Aug. ..	.....	21,629	.....	57,193
Sept. ..	.....	18,806	.....	65,936
Oct. ...	.....	18,043	.....	72,116
Nov. ..	.....	19,947	.....	75,664
Dec. ..	.....	18,252	.....	80,863

* At the end of month.

been more slab zinc obtainable from Germany and Poland, whose exports to the United Kingdom in March were about 2,000 tons as against only 440 in February and 330 in January. But Germany normally needs more zinc than it produces and these were probably accumulated stocks exported on account of the prostration of German industry by reason of the Ruhr occupation.

Apart from foreign needs, the domestic consumption is at present large enough to absorb present American output, but the uncertainty as to the long continuance of this heavy domestic demand presents ground for caution in respect to further expansion of output.

Zinc ore reached the high level of $50.00 per ton in the Joplin district and heavy sales at that figure were reported.

ZINC STATISTICS

The statistics just issued by C. E. Siebenthal and A. Stoll of the U. S. Geological Survey show that both the production and consumption of zinc in 1922 were somewhat higher than the preliminary estimate furnished on January 2nd. The figures for 1922 in comparison with the three preceding years are given below:

	1919	1920	1921	1922
Domestic Production.				
(Primary Zinc)				
Arkansas	31,437	31,481	15,278	13,627
Illinois	118,340	108,851	48,865	76,266
Kansas	43,942	41,044	16,573	24,167
Oklahoma	121,988	110,500	41,244	73,081
Pennsylvania	67,521	74,234	36,378	57,319
Other States	55,459	45,641	30,603	52,992
Electrolytic	27,056	51,526	11,559	55,334
Total primary	465,743	463,377	200,500	352,786
From domestic ore	452,272	450,045	198,232	351,783
From foreign ore	13,471	13,332	2,268	1,003
Total primary	465,743	463,377	200,500	352,786
Redistilled secondary	19,748	21,371	17,573	34,444
Total	485,491	484,748	218,073	387,230
Production by Grades.				
Grade A	45,377	80,713	24,084	67,424
Grade B	39,173	33,893	4,996	36,402
Grade C	40,917	59,811	47,814	49,980
Grade D	260,024	310,331	141,179	233,424
Total	485,491	484,748	218,073	387,230
Average selling price				
Grade A	8.3c	8.4c	5.6c	6.0c
Grade B	7.7	8.3	5.5	6.0
Grade C	7.2	8.2	4.9	5.6
Grade D	7.1	8.0	4.9	5.6
All grades	7.3	8.1	5.0	5.7
Total value of output	$70,882,000	$78,529,000	$21,807,000	$44,144,000
Stocks at smelters December 31st..	36,793	71,037	70,321	16,810
Apparent domestic consumption.	323,964	323,043	203,600	371,833
Retort Capacity.				
Total retorts at active plants	157,004	158,545	127,048	137,540
Retorts in operation at end of year.	107,500	56,000	42,400	81,000

JOPLIN ZINC AND LEAD ORES

Review for March 1923.

March was a record-breaking month for shipments as well as prices, some of the largest shipments of zinc ore ever made in the history of the field were made during that month. On March 10th over 20,000 tons were shipped, and the largest sale in the history of the field was made on the 17th, when a total of 28,000 tons were sold. These are record breaking sales and shipments. The average shipment for the month was 18,837 tons per week. The average price for zinc ore for the month was $48.15, and the base price level ran from $47.50 to $51.50. The total value of the zinc for the month was $4,535,539. Calamine ore production continues to increase, but shipments have been confined largely to the Granby camp and settlements have delayed the report of shipments, which will be included next month. The month of February showed a surplus stock of 75,000 tons, while the end of March showed it had been reduced to 60,000 tons, an absorption of three to four thousand tons per week.

Lead shipments were also very heavy, aggregating 10,485 tons for the month, or an average of over 2,079 tons per week. The average price for lead ores during the month was $118.86, while the base range ran from $115.00 to $121.50. The market for the month held steady for four weeks at $121.00, but dropped $6.00 in the last week of the month, closing at $115.00 for 80% lead.

Activities throughout the district have increased rapidly during the month. More drill prospecting has been undertaken, many new shafts are going down and considerable activity has developed in the older camps in the Missouri side of the district. This last activity has been largely a search for lead ores, but there is some additional zinc production promised during the early Summer months. Labor is fully employed and operators are reporting a difficulty in securing machine men as well as shovelers. Wages have been advanced and mine supplies have also shown an upward tendency in nearly all lines. This is being reflected in higher mining costs.

PRIME WESTERN ZINC PRICES.

Average Prices, East St. Louis Basis.

	1923	1922	1921	1920	1919	1918
Jan. .	6.96	4.71	5.44	9.22	7.12	7.71
Feb. .	7.25	4.50	4.95	8.82	6.37	7.73
Mar. .	7.87	4.65	4.73	8.62	6.18	7.42
Apr. .	....	4.91	4.75	8.26	6.16	6.81
May .	....	5.10	4.86	7.72	6.11	7.14
June .	....	5.35	4.44	7.58	6.57	7.85
July .	....	5.77	4.27	7.82	7.56	8.43
Aug. .	....	6.24	4.19	7.95	7.50	8.73
Sept. .	....	6.56	4.25	7.77	7.20	9.31
Oct. .	....	6.85	4.61	7.25	7.49	8.77
Nov. .	....	7.14	4.68	6.37	7.83	8.39
Dec. .	....	7.12	4.85	5.84	8.40	8.21
Av. ..	....	5.74	4.67	7.77	7.04	8.04

Annual Averages.

1917.....	8.93	1912.....	6.93
1916.....	13.57	1911.....	5.70
1915.....	14.16	1910.....	5.42
1914.....	5.11	1909.....	5.39
1913.....	5.61	1908.....	4.62

ALUMINUM IN MARCH

The aluminum position was further strengthened in March by smaller importations from Europe, light supplies at home and an increase in demand. It is significant that the Norsk Company recently announced that it is no longer producing aluminum for the open market. American agents of Swiss, French and English manufacturers have capacity well sold for several months are offering little or nothing to American consumers. Consumption has increased in England and France and Japanese buyers have been more actively in the market. The result is that there is less foreign aluminum available for shipment to the United States. In France production has been restricted by the shortage of coal.

American supplies are practically cornered and prices, while higher, are irregular. Importers are in arrears in deliveries on American contracts. Virgin aluminum 99% plus, is very scarce and nominally held at 27.00c f.o.b. New York. Some dealers claim the market is even higher. At the same time there is one small lot of Italian metal available at 26.50c delivered nearby points and there may be a few other stray lots of this character soon available. Stocks at Cleveland and Detroit have been reduced to low points and prices there are fractionally higher than in New York. Ap-

parently the high level of prices is checking buying but most large consumers are covered on contracts.

The Aluminum Company of America is concentrating its selling forces by transferring its Belgian office to Pennsylvania where a new corporation has been organized under name of L'Aluminum d'Amerique. A Pennsylvania charter has been asked. The East St. Louis plant of the Aluminum Ore Company of America is employing nearly as many men as during the war, about 2,000 men being reported on the pay roll. A shipment of 2,000 tons of aluminum ore is reported to have been made to the Atlantic coast for export to Europe.

ALUMINUM, ANTIMONY, SILVER AND STERLING EXCHANGE QUOTATIONS IN MARCH

Day	Aluminum	Antimony	Silver —— N. Y.	Silver —— London.	Sterling Exch.*
1	24.25	7.75	.66⅝	31 15/16	$4.70½
2	24.25	8.25	.66	31 9/16	4.70⅜
3	.....	....	.66⅛	31 11/16	....
5	24.75	8.75	.67	32⅛	4.70
6	24.75	8.81¼	.67¼	32¼	4.69⅝
7	24.75	8.93¾	.67½	32	4.69½
8	24.75	9.00	.66¾	31¾	4.70⅛
9	24.75	8.93¾	.67	32 1/16	4.70½
10	.....	....	.67¼	32 3/16	....
12	24.75	8.93¾	.68¼	32 11/16	4.70¼
13	24.75	8.87½	.67½	32¼	4.70⅛
14	24.75	8.80	.68⅛	32⅝	4.69½
15	24.75	8.80	.67⅝	32⅜	4.68⅜
16	24.75	8.80	.67½	32¼	4.68¾
17	.....	....	.67½	32 5/16	....
19	24.75	8.75	.67⅛	32 1/16	4.70⅛
20	24.75	8.75	.67⅞	32½	4.69
21	24.75	8.75	.67⅝	32 7/16	4.69⅜
22	24.75	8.75	.67⅜	32¼	4.69⅛
23	25.50	8.75	.67¾	32 7/16	4.69⅛
24	.....	....	.68	32⅝	....
26	25.50	8.75	.67¾	32¾	4.69
27	26.00	8.87½	.68⅝	32⅞	4.68¾
28	26.00	8.87½	.68½	32⅝	4.68 3/16
29	26.00	8.87½	.68⅜	32¾	4.68
30	.....	....	.68⅜	....	....
31	.....	....	.68⅜	....	....
High .	26.00	9.00	.68⅝	32⅞	4.70½
Low .	24.00	7.75	.66	31 9/16	4.68
Aver .	24.95	8.75	67.53	32.29	....

PLATINUM IN MARCH

Throughout March platinum developed a steadily advancing tendency. Sales of refined were made early in the month at $110.00 an ounce and by the end of the month the price had advanced to $112.00 while early in April the official price was advanced to $115.00 an ounce. Today the official price is unchanged at $115.00 but there are few sellers who would accept anything under $118.00 an ounce; in fact, one quotation that was put out at $118.00 April 5th, now would not be renewed, No. 12 medium is now held at $123.00 and prices asked for hard range all the way from $128.00 to $130 an ounce.

The sharp advance in prices in the last few weeks is attributed to short supplies of both crude and refined. Early in March crude was available at $102.00 to $104.00 an ounce but today $112.00 was bid and it is understood that some business was done at $114.00 while holders were asking $115.00 an ounce, that is almost as much as for refined. Early in March the United States Government sold 1,200 ounces of platinum but there were heavy reclamation charges so that the price was not a market factor. It is understood that the sale was made somewhere between $80.00 and $90.00 an ounce.

Refiners have been actively in the market for crude metal the last few days and manufacturing jewelers have been anxious buyers at $115.00. Importations from both Colombo and Russia and other European countries have been light.

Palladium has developed a stronger tone in sympathy with platinum and is now selling at $79.00 an ounce. Iridium is also stronger, having advanced from $250.00 to $255.00 an ounce.

ALUMINUM PRICES.

Open market quotations on virgin aluminum 98-99% pure, in New York.

	1923.	1922.	1921.	1920.	1919.
Jan. ...	22.75	17.74	22.86	32.00	33.10
Feb. ...	23.25	17.33	24.50	31.83	32.26
Mar. ...	24.95	17.52	23.44	31.50	29.81
Apr. ...	.....	18.06	23.25	31.61	30.67
May ...	.....	17.92	23.06	31.95	32.21
June ...	.....	17.87	22.75	32.00	32.83
July ...	.....	17.87	22.62	32.00	32.57
Aug. ...	.....	17.87	20.22	32.21	32.23
Sept. ..	.....	18.26	19.02	31.44	32.50
Oct. ...	.....	20.51	17.85	29.12	32.50
Nov. ...	.....	21.66	17.50	27.80	32.50
Dec. ...	.....	22.52	17.50	23.83	32.48
Av.	.....	18.68	21.21	30.61	32.14

Annual Averages.

1918.....	33.60	1914.....	18.59
1917.....	51.25	1913.....	23.63
1916.....	60.73	1912.....	22.52
1915.....	34.1f	1911.....	20.34

ANTIMONY IN MARCH

The advancing movement seen in February was continued into March, and from 7.75c at the opening, the price rose in a week to 9.00c duty paid for Chinese 99% on spot New York.

The cause of this was the continued absence of direct or first-hand quotations from China. Inquiries and bids sent to that market elicited for several weeks no firm offerings, and for a time the principal importing interest and largest holder of spot New York stocks withdrew entirely as sellers, fixing their price later at 9.00c, though a limited amount was offered by outside sellers at 8.75c.

There was fairly active trading in futures on re-sale parcels for shipment from China and on these there were profit-taking sales at around 6.25c to 6.50c c.i.f. New York.

A new development ensued in the shape of offerings from England of antimony due there in March from China for reshipment to this country. As these would be available here in April and could be shipped direct to other Atlantic ports besides New York, thus saving the usual rail freight from here, a number of parcels of this sort found acceptance at 6.50c c.i.f. American seaboard in bond. But as England continued to offer, and buying slackened, bids on further similar transactions of as low as 6.12½c were accepted.

ANTIMONY PRICES.

Prices for Chinese and Japanese antimony (ordinary grades) in New York.

	1923	1922	1921	1920	1919	1918
Jan.	6.81	4.45	5.22	10.53	7.59	14.23
Feb.	7.20	4.38	5.23	11.55	7.24	13.67
Mar.	8.75	4.25	5.30	10.97	6.83	13.12
April	....	4.88	5.15	10.45	6.82	12.52
May	....	5.42	5.25	9.44	7.56	12.41
June	....	5.13	5.06	7.93	8.37	12.99
July	....	5.08	4.68	7.43	8.81	13.18
Aug.	....	5.29	4.55	7.04	8.92	13.81
Sept.	....	6.43	4.53	7.10	8.53	13.93
Oct.	....	6.80	4.94	6.62	8.60	13.44
Nov.	....	6.54	4.66	6.05	9.06	9.10
Dec.	....	6.35	4.51	5.46	9.56	8.19
Av.	....	5.42	4.92	8.38	8.16	12.55

Annual Averages

1917	20.73	1913	7.43
1916	25.33	1912	7.68
1915	29.52	1911	7.48
1914	8.53	1910	7.27

Highest Grade TRADE MARK H C T 99½%

ANTIMONY

Regulus H.T.C. Brand 99½%

Regulus S.G.C. Brand 99%

Crude S.G.C. Brand 70%

Antimony Ore

Chinese White Oxide of Antimony H. T. C. Brand 98% Minimum

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Offerings began at length to come from China, but as the prices named were 7.00c c.i.f. New York in bond and higher, these high figures caused the withdrawal for a time of cheap resale shipment lots, and 6.50c was again paid for prompt re-shipment from England.

The direct Chinese price of 7.00c was not realized, however, there being some expectation that the resumption of offerings might be followed by a further loosening up in that market, and buyers showed little confidence.

But the position in China is represented as intrinsically strong. It is stated that the previous low prices prevailing have discouraged production, and there have been insurrectionary disorders that have affected the producing districts, and imperilled goods in transit from there to the coast. Stocks are said to be light and are probably rather closely controlled.

Consumers have not been actively in the market here during March, and the month closed with a quiet condition at 8.75c to 9.00c duty paid for spot New York, 6.50c to 6.75c c.i.f. New York in bond for futures.

QUICKSILVER IN MARCH

At the end of March the market for quicksilver had a sagging tendency as a result of relatively small buying throughout the month. Large buyers covered their requirements for several months early in the year and were in the market only for small lots. Even the larger sales were confined to 25 to 50-flask lots and the buying of 100 to 200 flask lots, was exceptional. Much of the buying was in lots of 1 to 5-flask lots which today are selling at $70.00 to $70.50 per flask. Twenty-five to 50 flask lots have been selling, and are still available, at $69.00 per flask. In the last few days mercurial manufacturers and furriers as well as vermilion paint makers have bought some lots.

Early in April several hundred flasks arrived from abroad but throughout March the arrivals were relatively light. Those lots which did arrive were delivered against contracts principally. The undertone of the market was somewhat firmer at the close of the month and early in April Spanish manufacturers withdrew from the market while Italian interests were asking the equivalent of $72.00 New York which, of course, put them out of the market. The London market early in April was firmer at £11 10s but this was a recession of 5s from the price asked at the end of March, according to cables.

Output of quicksilver in the United States in 1922 according to the United States Government was 6,497 flasks of 75 pounds net as compared with 6,339 flasks in 1921, which was the smallest annual output in the 72 years of recorded production of domestic quicksilver. In 1922, California produced 3,494 flasks, Texas, 2,725 flasks, and Nevada and Oregon 278 flasks.

Changed Public Opinion—"Starving the utilities is a game that does not pay," declared Prof. J. A. Switzer before the recent conference at the University of Tennessee, Knoxville. Mr. Switzer is a professor of hydraulic engineering at the state university, and made this significant comment in emphasizing the need of instructing students who are to be the public utility men of the future along practical lines. "I want to say a word or two on the attitude of the public toward the utilities," said the professor. "Time was when the favorite national sport was 'corporation baiting.' Public utility corporations, along with other big business enterprises, were held up as 'soulless corporations.' Doubtless some of them were, and for the sins of the few the many had to suffer. But now the idea is dawning that public utilities are public necessities, and that starving the utilities is a game that does not pay."—**Natural Gas.**

IMPORTS OF ALUMINUM.

	Crude, scrap, etc.		Mfrs. of
	Pounds.	Value.	Value.
1911* ..	4,173,308	$ 598,272	$ 63,899
1912 ...	22,759,937	3,092,889	428,182
1913 ...	23,185,775	3,905,977	1,090,229
1914 ...	16,241,340	2,729,383	1,308,036
1915 ...	8,534,834	1,511,988	301,863
1916 ...	6,646,385	1,729,298	55,864
1918 ...	1,800,436	569,150	39,114
1917 ...	58,703	18,084	57,461
1919 ...	17,644,004	5,810,557	318,407
1920 ...	40,074,132	11,880,176	2,554,097
1921 ...	30,577,790	6,707,892	2,061,577
1922† ..	34,187,043	6,354,270	1,682,138

* Six months commencing July.
† Through October 31st.

Steel and Metal DIGEST

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THE BUSINESS SITUATION

The warnings against inflation which have been circulated throughout the business community in the last few months undoubtedly are being heeded. In many respects there is sound reason for business men to use an element of caution in transactions. Fundamental conditions, while apparently sound upon the surface, are less favorable when examined closely. The existence of an abundance of money, high records of traffic, improved situation of the farmer, full employment of labor, enormous output of manufacturers and the heavy consumption of general merchandise, are all cited as favorable factors for improved conditions.

The credit situation undoubtedly is favorable within certain limits but it must be clearly evident that the Federal Reserve System presents an obstructive front toward further expansion in business. This fact is reflected in higher rates of interest demanded for commercial paper as compared with rates prevailing two years ago. Yet money is plentiful and rates are relatively low when taken in comparison with those which prevailed in 1919. Re-discounts of paper at Federal Reserve banks may not reach dangerous proportions, but they have increased largely recently, being $1,894,650,000 last week. It is evident that commercial interests who generally recognize the importance of checking undue expansion in trade are showing less restraint in borrowing after a period of ultra conservatism.

Rail Traffic

Car loadings on the railroads have been and continue to be enormous. The Car Service Division of the American Railway Association points out that during week ended April 21st, total loadings were 957,743 cars, being within 61,000 cars of the maximum weekly number ever loaded which was in the week ended October 15th, 1920, when the crop movement was an important element. It should be noted, however, that increases in railroad revenue have not been in equal proportion to the increase in loadings nor do they compare favorably with net earnings a year ago, this year's earnings reflecting the increased operating expenses just as in most lines of manufacturing industries.

Improvement in the agricultural industry is heralded by the fact that three times as many tractors were sold to farmers in the first quarter of 1923 as in the corresponding period last year and higher purchasing power of the farmer is claimed because of the fact that mail order houses which sell largely to farmers distributed 40% more goods in the first four months of this year than in the corresponding period last year. In April also, prices of nearly all kinds of grain advanced. Agricultural operations, are not helped by a cold Spring and the movement of labor away from the farms to the cities is causing some concern, especially in the south.

Farmers' Position

The farmers' position has been weakened by the general rise of commodity prices in the last few months and a dangerous heresy is finding root in some portions of the wheat belt where farmers and some others imagine that a reduction in wheat acreage would help their position through stimulating an advance in prices. According to the Department of Agriculture, the farmers this year

intend to plant a Spring wheat acreage equal only to 94.5% of the acreage planted last year. There is also an intention of slightly reducing the acreage planted to corn and a larger decrease in the planting of potatoes. So far as wheat is concerned the tendency of the American farmer, it seems, is to embark upon a great bull speculation. The holding back of wheat from market may be assisted by the new Federal rural credits act. Any temporary gain from such manipulation, however, will be followed by the inevitable reaction in which the farmer will reap a sorry harvest.

The price of American wheat is practically made by our exports, mainly to Europe, and Europe, because of its reduced purchasing power has been refusing American wheat to a large extent and substituting other food products. Smaller purchases of American wheat have been due entirely to the paucity of foreign consumers and a further advance in prices here would make the situation eventually worse for the American grower.

Cotton Crop

The lucrative price prevailing for cotton is reflected in an increase of 3% in the intended acreage planted to this crop. An increase in the acreage of oats, barley, flax and tobacco is also shown by the Department of Agriculture as being the intention of growers. A cotton crop of less than 13,000,000 bales is in sight for this season while consumption of American cotton for nine months has been at a rate exceeding 13,000,000 bales a year. The cotton planter seems assured of another prosperous year but it is very doubtful that consumers of cotton goods will continue to purchase to an extent that will sustain a price of 25.00c to 30.00c a pound for the raw staple.

The foolishness and futility of an effort to regulate crops and prices by curtailment of production or of consumption has often been shown and are likely to be demonstrated again many times if blundering politicians and ignorant but well-meaning people, as in the case of sugar, attempt to bump their heads against economic law. If left to themselves these conditions always work their own cure and to the ultimate advantage of both producers and consumers.

Advancing Wages

The hestitation shown in manufacturing industries and general trade in the last few weeks is attributed to the higher prices prevailing as a result of advancing wages and increase in costs of output. The contraction in building orders, most marked in April, is the result mainly of high wages and threatened strikes in the building trades. Railroad buying of cars and locomotives also received a decisive check not only because of inability to obtain early deliveries but because of higher prices prevailing.

Steel Industry

In the steel industry there is increasing evidence that production has about reached the limit of capacity as measured by equipment and labor supply. As is well known the second advance in wages in the steel industry since last August went into effect April 16th. This advance was 11% equivalent to an increase of about $3.00 a ton in cost of production. The previous wage advance which took place in September, 1922, was 20%. Both of these advances were made to maintain and increase the supply of labor. Even so men are being attracted away from the steel plants to other industries by special inducements of some kind. There is a constant shifting of labor from one point to another which is preventing some lines of the steel industry from maintaining output over 75% of capacity, although the industry as a whole is operating slightly over 93% of ingot capacity.

Wages and Prices

Wages also have been advanced in the copper industry about 5%, as well as in the packing industry. The clothing industry too has granted increases of a substantial character; in fact clothing manufacturers now are paying wages at or close to the war level of payments. The textile industry in New England has advanced the wage scale 12½%. This last grant will place wages at textile mills within 10% of the war wage, the latter culminated only after an advance of 150%. A few railroad companies also have readjusted wages upward and there is agitation for further increases in wages by the railroad brotherhoods. Recently wage advances generally have been proportionately greater than the advance in prices of commodities.

If there is no increase in the supply of labor, wage advances are likely to continue until consumption is curtailed by the high prices following the increased cost of productin, resulting from high and still higher wages. Already there are indications of contraction in buying of some commodities. Orders taken by the Steel Corporation subsidiaries in April for instance were 17% less than in March, and this decrease probably was more pronounced in the experience of independent companies. The same is true of business in the copper industry. Both domestic and foreign copper consumers exhibited very little buying interest in April although prices of unwrought copper receded sharply. Manufacturers of wrought copper and brass, however, were not inclined to make any concessions in selling prices because of the higher cost of production resulting from increased wages of employes.

Wholesome Conservatism

The extreme conservatism that has been developed in the last four or five weeks may be regarded as a reassuring factor since it is helping to check the development of a boom, the reaction from which would be disastrous to trade and industry. Yet conservatism among employers, will not check the upward tendency of wages when the supply is short of the demand and it is impossible to increase the supply while the country continues the short-sighted policy of barring desirable immigrants. An inflation in wages is just as detrimental to the general interest as an inflation in commodity prices because it tends to increase cost of living through increases in cost of production which are passed on to the consumer in higher selling prices.

Unbalanced Industry

Labor itself by unsettling industry through the unbalanced earning power of different groups of wage earners must pay the penalty of higher costs of living and eventually bring about the inevitable period of depression with its accompanying factor of much unemployment, which always follows a period of inflation. It is again pointed out that rise in wages without any corresponding rise in prices of farm products will place the agriculturalist at a greater disadvantage by reducing his purchasing power through which his consumption of general merchandise is decreased, reacting upon the wage earner unfavorably. Already there is much complaint of the shifting of labor from the farms to the cities which will eventually result in higher prices of farm products and lower compensation to wage earners in the industries.

Securities

The violent decline in prices of securities on the New York Stock Exchange in the last ten days in large measure is due to the indication that within the next six months narrow margins of profit in the industries will reduce the intrinsic value of many industrial stocks. Railroad securities have suffered from the same prospect although to a lesser degree than industrial securities. There is always a tendency, however, to carry a decline of this kind to an extreme, just as there is a tendency to overdo an advance based upon reversed conditions.

Decreased Business

There is no mistaking the signs that business is decreasing in volume and that prices of commodities for the time being have reached the peak. Reaction is in order. It is possible that corrective measures have been put into force sufficiently early to prevent a collapse and that there may be a compensating recovery in the third quarter of the year. There can be small doubt, however, that the second quarter of the year will compare unfavorably with the first quarter in volume or in profits, taking business as a whole. Although some improvement in the second quarter of the year may be granted it may be doubted, that it can be long continued unless the labor situation is corrected, of which there is small probability. Under such conditions, therefore, the outlook for the fourth quarter will be the least favorable quarter of the year 1923.

Exchanges.

A measure of the decrease in general business in April, as compared with the preceding month is furnished by clearing house exchanges which in April revealed a decrease of 6.7%, although compared with April last year there was a gain of 7% in the aggregate. It is significant that in New York City alone exchanges in April were not only 4% less than in the preceding month but also 9.7% less than in April 1922.

Price Trend

In the first week of May it is also notable that a marked downward tendency in prices of commodities accompanied the decrease in the market value of sesurities which means a readjustment of supply and demand or the belief that the facilities for maintaining prices at the previous high levels can no longer be commanded. A drop of 1.00c a pound in the price of wheat; 2.00c a pound in the price of cotton; and a fractional decline in the price of sugar has attracted widely extended attention and it must not be lost sight of that financial influences cannot be depended upon to favor further trade expansion. These influences would be ignored in a speculative period like that of 1919, when the public in a feverish state of mind ignored economic truths and threw caution to the winds. Today, however, the temper of the business community is more conservative and inclined to heed many warnings that have been given against inflation.

Foreign Situation

The economic situation abroad generally has improved in recent months but a clearing of the industrial situation still awaits political accord. France and Belgium on the one hand, and Germany on the other, are still at odds over the Ruhr. An agreement on reparations is not so near as it seemed only a week ago and the Near Eastern situation is again tense. British trade interests are undoubtedly anxious for an adjustment of the German dispute but seem powerless to bring about a reconciliation. The status of Great Britain as shown by the recent Board of Trade report is most encouraging, showing Great Britain in a thoroughly solvent condition with income from other countries more than sufficient to cover the payments which she has to make. The large surplus in the British treasury on March 31st, amounting to the equivalent of $560,000,000, is most reassuring and has prompted the chancellor of the exchequer to propose a reduction in taxation sadly needed by the English peoples.

Corrective Measures

Mercantile trade reviews in this country at the close of the first week of May indicate widely extended activity in retail lines but a further slackening of the pace in wholesale trade. It should be observed that even in retail lines there is evidence of resistance to higher prices although not all of the price increases in primary markets have been passed on to the ultimate consumers through retail stores. The effect of record-breaking production is being reflected in lower prices for metals, grain, cotton, cotton cloths and other important commodities while business is slackening in vlume. The decrease in trade, however, is accepted as salutary and the conservative feeling generally noted throughout business is regarded as a much needed neutralizing element to allay inflation that threatened in the first quarter of the year.

AFTER PRICE ADVANCES, WHAT?

When a commodity market has ended an extended period of advances, why do many men look for poorer business conditions and a decline in prices? Not all men do, but certainly some do.

Of course there are differences in markets. Markets may, for instance, be classified as to their sensitiveness in equalization. The most sensitive markets are those in which the buyer of one day may be the seller of the next. The least sensitive are those in which the producer sells to the consumer, sometimes for delivery over a long period. Tin is a good example of the former. It may advance for one day or two days or almost any number of days, and may decline for any number of days. Finished steel products, on the other hand, move in long swings without intermediate reactions. In tin, a buyer cannot conclude that because there has been an advance and the market becomes relatively stationary it will not advance again. In steel, once an advancing movement is ended the advances are unlikely to be resumed.

Why should it be assumed after such an advance that there will soon be a decline, or that at any rate market conditions will become less strong? There are various reasons why some men so think.

One reason is found in the overzealousness of salesmen, who create a foundation for such a belief. In their sales talk they make much of advancing prices, making their chief argument on this point. Thus the notion is fostered that one buys only because prices are advancing. The view is not correct, for

if prices never changed buyers would not go out of business. The salesman who depends upon price advances gets to a point where his latest prediction of an advance fails of realization and then the buyer is likely to lose confidence in him.

Another reason is found in the fact that sometimes those who make prices—not the salesman, who is merely the representative—sometimes push too far the advantage of there being a sellers' market and carry the advances too far, whereupon there is promptly a reaction. Obviously if a seller makes all the advances he can the day will come when he puts his price too high. The buyer, remembering such reactions, immediately becomes nervous when price advances cease.

Another reason is the amount of advertising the "business cycle" receives. The phrase may be somewhat new, but the thing itself and the recognition of it, are old. Ostensibly we talk about eliminating or correcting the business cycle. Practically what we do is advertise it. The individual may agree that, in theory, it would be well to do away with the cycle, but he is careful to conduct his own affairs according to it until someone eliminates it for him. The cyclist may urge people not to put prices up but what occurs is that the idea that prices will go down after they have gone up is encouraged.

For the efficient conduct of industry and business there ought not to be fluctuations. We should be engaged in producing, distributing and consuming. Stationary prices should be considered normal, not abnormal. Price advances and price declines should be considered abnormal. The better condition would be for all parties to become content when they see that prices are stationary.

PROFITS AND THE BUSINESS CYCLE

We should all be better off if we thought straight and frankly recognized facts. We do not do this either in the matter of profits or in connection with the business cycle.

The amount of apologizing that is done for the making of profits would be amusing if the cause were not so distressing. If a manufacturer advances the price of his wares he seems to feel it necessary to explain that he had been losing money or that his costs have "gone up." There may be some manufacturers who would like to say that they are advancing prices because they wish to make profits, but they realize this would be in bad form or that it might make trouble for other business men, so they refrain.

As a plain matter of fact, why is it that a seller may not with good grace say frankly that he is advancing prices because he wants to make profits or increase his profits? What law or what principle in human affairs is their that business should not be conducted for profit? One does not apologize to the world for working for a salary or for daily wages. It may be said that the practice does no particular harm. It does no harm in various ways. One way is that it makes liars, which is not a good thing.

A great deal of time and energy, now unprofitably expended, would be saved if we all recognized and admitted the plain truth that men want to make profits and that it is proper to do so, within the law. There is, for instance, the time of the editors who write editorials complaining about "the trusts" and warning them not to inflate, also the time of the editors who complain about the Federal Trade Commission when it seeks to have the law obeyed. Perhaps the commission would be less active, perhaps there would be no commission, if the great majority of people were not industriously engaged in fostering the notion that the making of profits is a crime that should be concealed.

This attitude as to profits is interwoven with the matter of "the business cycle," about which we are approximately as unfrank as it is possible for men to be. The majority of us, perhaps all, realize that extra profits in good times are not only entirely legitimate, to make up for the losses or absence of profits in bad times, but are absolutely essential for the preservation of business, that is, for saving the life of society, the preservation of the human race in its present civilized form. Yet when the extra profits are sought the number of lies told is innumerable. In particular do we avoid even intimating that we feel we must make profits in this year or in these two years because we think the next year or the next two years are going to be bad years. Theoretically we believe the cycle exists but

we feel it would be malpractice to admit the concrete facts of which the cycle is composed.

We do worse, if possible, even than that, since we profess the greatest enthusiasm for abolition of the cycle. Very likely some lines of industry would be profitable all the time if there were no cycle but some would not be, and members of these lines are just as glib as members of the others in advocacy of abolition of the cycle, when they know perfectly well that they must have these periods of exceptional business strength in order to repair their affairs.

The fault is perfectly plain. It lies in the fact that sellers have no practicable means of protecting themselves against losses in bad times in overhead including depreciation, obsolescence, rent for the use of capital, taxes and other fixed charges including the salaries of the president and office boy. The time usually comes when it is better to get a new dollar for an old one, the new dollar being sometimes a bad one, than for everyone to sit still and twiddle thumbs except the man who pays the idle expenses. If sellers could hold their prices in these times so as to avoid losses they would not need to make extra profits in good times and would have no fancied crime to conceal.

AMERICAN PARTICIPATION IN WORLD AFFAIRS

Senator Pepper of Pennsylvania speaking before the annual meeting of the American Newspaper Publishers' Association made a plea for American participation in world affairs and insisted that "if we favor the process of adjustment, we should not be thwarted by mechanical difficulties." He saw danger of "the collective tongue" wagging too much about people and parties when the essential facts should be considered and urged the press to mould public opinion in the immediate future that the discussion of foreign relations should center on the fundamentals, instead of on specific means, such as the League of Nations, the World Court or the Hague tribunal. Following the suggestion we shall endeavor to direct attention from one particular angle.

The greatest principle in affairs is that of compensation, action and reaction, the swing of the pendulum. It is seen in physics, in business and in the working of the individual human mind.

Those who saw in our wartime impulses and activities the permanent adoption of new creeds or principles of conduct did not allow for this great law of compensation, of action and reaction. We were to continue after the war as we were during the war. By no means. Instead, there was a reaction.

What we wish to stress is that we ought not to be guided now by the thoughts we have had and the things we have done in the four and a half years since hostilities ceased. We have been abnormal during the period. There was a reaction.

We were economical during the war. Were we so afterwards? Let the extravagances of 1919 and 1920 testify. We worked hard during the war. Did men work hard afterwards or did they make a business of shirking? We practiced co-operation during the war, doing team work. Since then has not the idea of "every man for himself" been stronger than it was before the war? During the war the two parties worked together in Congress. Since then they have quibbled on general subjects about which they would not have hesitated before the war to agree.

On the points just mentioned there will be substantial agreement everywhere. There are other points, equally involved in this law of action and reaction, on which there may not be at the present moment such agreement. To these points we should now apply the principle, that we may recognize that what many of us have said and thought during these last four years does not really represent the permanent ideals of the American people. We should bury jealously and rancor and forget individuals. Above all we should remember that while politics are all right and political parties a necessity our foreign relations are those of the American people, not of one political party or another. The plain fact, whether it is a comfortable one or not, is that while co-operation during the war might have been followed by an era of good feeling politically it was instead followed by a period in which issues were hunted for in order to restore political barriers. We do best when issues arise that must be decided and are thus forced into the political arena and worst when questions have to be searched for to make political combat.

THE OBSERVER'S CORNER

It is the common belief that "public sentiment" will, when "aroused" lead to the correction of evils and abuses. Public sentiment has been described as an irresistible force, which seems to suggest in a way that the great majority of the people will line up, or can be lined up, for a proposition if it has sufficient appeal in it. The idea in this would be that the great majority of the people are a more or less homogeneous mass, responding equally to any influence exerted.

Of course that is not true. Some men are more responsive than others when public sentiment on a subject is growing. It is both interesting and useful to study men and classify them as to their responsiveness. When thinking of public sentiment and public questions such matters naturally come to mind as the country's foreign relations, the railroads, the labor unions and the cost of living. It is interesting to classify men as to their probable response on such public questions and it is also very useful since many men desire to help create public sentiment along proper lines, and to classify men helps one in endeavoring to expend his energy in the most promising directions. The Observer has a fancy that those men, whoever they may be, who read this department of the Steel and Metal Digest are the kind of men who make a definite personal effort to improve public sentiment.

Of course no one can hope to make a classification of men as to their response to matters of public interest that could be considered at all final. Anyone can make his own classification and everyone who desires to encourage public thinking along right lines ought to do so as a valuable aid in his efforts. In going into details The Observer aims merely to furnish one sample of classification. No effort is here made to arrange the classes picked out, according to any particular order, whether of numbers, of intelligence or of responsiveness.

The first class that will be named as they generally like to be, are the politicians. The politician thinks for himself in the matter of getting and retaining votes but the typical professional politician does not adopt views on the appeal of their being right, or even upon their being the views of the majority of his constituents, for the majority may be luke warm and a small minority on the other side may be aggressive and vindictive, likely to deprive him of votes if he crosses them.

Another class are intelligent but careless or timid. They recognize the truth and believe it in theory but are indifferent to fighting for it. They may even recognize they are being imposed on without being moved to action. They might be called pacifists. They are not stirred by the quotation under a fine bronze bas-relief of Roosevelt that hangs in many American homes: "Aggressive fighting for the right is the noblest sport the world affords."

Then, again, there are the so-called "labor leaders." In essence they have a principle in common with the politicians. They have, or at least express, views respecting what they parade as the welfare of the people when they are thinking really only of those of the people who can be organzied into unions. To illustrate, they countenance restriction of output when the workmen who restricts is much less benefitted than the rest of the people are injured so that the net result is bad for the whole people.

The three classes that have been designated are all selfish, each in a different way, and in a measure they are intelligent. A fourth class is more or less intelligent and not selfish, those who adopt their views by emotional processes rather than logical thinking. Not a few uplifters are in this class. They refuse to consider economics and are proud to feel that they are simply fighting for those they consider the under dogs.

The four classes now designated all have intelligence enough, if they would use it, to select the right side in matters that concern the welfare of the whole public, but in each of the four cases there is a reason for not following the dictates of clear and logical thinking. One class considers votes first. Another is lazy and selfish. Another thinks of a particular class, not of all the people. The fourth can think but will not.

Unfortunately there is a much larger class still, larger than all the other put together, people who have not sufficient intelligence, time or energy to study the great questions and think clearly. They will, to illustrate, accept "The stars and stripes" as a complete and sufficient argument for doing this thing and not doing that thing, or they will take the phrase "the melting pot" as equivalent to physical proof that the melting occurs. The class is very large and would have been not dangerous, but fatal, long ere this were it not for the happy circumstance that their emotions are much more readily aroused by good men than by bad men. They have the saving grace that while largely uninformed and incapable of much logical thought they have an innate sense of what is good and what is bad.

Finally, there are men who have intelligence and have courage which some intelligent men lack, are free from the private interests that keep others from acting as their intelligence alone would dictate and have the energy to fight for their convictions which the intelligent but selfish or lazy men do not have. It is chiefly to this class that those who wish to arouse public sentiment along right lines should address themselves. Those who wish to indulge in the great sport of aggressive fighting for the right can do more effective work if they recognize precisely where their work will do the most good.

INDUSTRY'S HANDICAP OF FEAR

Under the above caption, Floyd H. Hazard writes as follows in **Industrial Management:**

Fear makes people cautious. The memory of detrimental happenings makes people afraid that such happenings may occur again unless they are very careful. The burnt child fears fire, and fear of fire lingers throughout adult years.

Industry must be venturesome at least to a reasonable degree or it cannot be successful. Therefore, industry continually plays with fire, speaking figuratively, by promoting new lines of industry, experimenting with new methods and promulgating new ideas. In so doing, industry often gets burnt, in that these new lines, new methods and new ideas are not successful in producing good results. When industry does get burnt in this way, industry becomes exceedingly cautious and hesitates to repeat the prosecution of any plan that has developed weakness or failure. Usually, when weakness or failure has developed with regard to some certain industrial activity, a long period elapses before industry acquiries sufficient courage to try it again.

There are many things that industry would like to do if it could, and which industry has tried to do at various times and in various ways, if for no other reason than that they constitute good business propositions. For instance, industry knows that it is a good proposition, commercially, to take good care of its workmen and has expended much effort and large amounts of money, not wholly in a commercial spirit, to increase its workmen's welfare. But often industry has found its workmen unappreciative of these expenditures and various plans for the mutual benefit of industrial workers and industry itself have failed because the workmen did not co-operate to make them successful. Workmen who might have received such benefit continuously if they had accepted it in a cooperative spirit and cherished it have in some instances dubbed it wholly "commercial" and have so taken advantage on account of its privileges that industry was forced to curtail or withdraw them entirely.

Such experiences have created an attitude of fear on the part of industry which results in a handicap and this handicap is shared by the industrial worker. Industry realizes the benefit of these welfare measures, which, if cooperatively participated in by the industrial worker, are conducive to better mutual understanding between employers and employes and produce such improved results; but industry realizes also that such measures must have a sound financial basis or they cannot be carried on, and if they but stop to think, workmen will see that this is perfectly reasonable. They themselves would quit doing anything that did not pay.

No self-respecting workman expects something for nothing. He does not want charity and he shrinks from it. He realizes that the one certain way to obtain benefits and privileges is to be worthy of them.

A PLEA FOR AMERICAN AND BRITISH CO-OPERATION

In a recent speech before the British Empire Chamber of Commerce in U. S. Mr. Charles M. Schwab, chairman of the Bethlehem Steel Corporation, said in part:

I do not know what I am going to be able to say to you gentlemen today that will interest you. I know that you are all busy men, as I am, and do not want to waste much time here listening to me, but there are some things that impress themselves upon my mind every time I think of your organization, of British business and American business, that might be worth just a few moments of your consideration. First of all, I want to congratulate you on this organization having grown to the size it has in this short time. I came very near to going to the north of England for this work many years ago. I do not think I have ever told the fact that at one time in my life, I think about 35 years ago, I signed a contract with Sir Arthur Keene to go to Birmingham and build an American Steel Works on American plans in Great Britain, and then a very curious thing happened. At the last moment I said to him, "If I go to build build this works for you, you will let me do over there as I do at home with labor." He said: "No, we are bound by traditions of labor with reference to organization and methods that we cannot afford to take the risk of changing. It would be too great for us." "Then," I said, "you had better let me remain in America, because the things that I can do can only be made truly successful with the co-operation of the men employed in the operation of your works," and later on, I am going to mention that as illustrating one of the things that we have got to do throughout the world, with reference to labor organization. You know, at one time I visited Andrew Carnegie at Skibo Castle, Scotland, and as I drove over the moors I saw floating in the breeze a beautiful flag, at one moment the British flag was showing, and the next, the American Stars and Stripes, and I wondered that he should be flying the two so closely on the same flagstaff, but as I approached nearer to the castle, I found that he had taken the two flags and sewn them together into one, and there, waving over the castle in Scotland were the British and American flags inseparably united. And so I have always felt with the British and American peoples and the English-speaking peoples of the world—that we ought to be united in sentiment as we are in language; that we ought to be united in our business interests and in everything we do for the good of humanity, because I am firmly convinced that the advance of the world to a better and higher plane, the preservation of institutions that stand for the good of humanity, must lie in the hands of the English-speaking races of the world. If that be true, and I am sure it is true, then how important that we should ally ourselves in spirit, thought and business, because while we have many sentiments and patriotic thoughts filling the minds of all of us that at times seem predominant, yet it is a man's business that constantly presses and preaches to him from day to day, that moulds his thoughts and ultimately, his actions, so that if our business rules are on a good and harmonious basis, then the first great step towards that great amalgamation of which I have spoken has been made, the foundation has been laid on good and secure ground. Now, these preliminary remarks are the keynote of what I had intended to say to you today.

American Steel Industry.

As an American manufacturer in the steel industry, which is now the largest industry we have in America, I have just been telling your good President that I was practically the Dean of the Steel Industry from point of service, having been actively engaged in the building up of this great business. He would be a fool, indeed, that could go through 43 years of experience in that business and sell steel to a man like Harry Black, that did not learn something about the business principles that underlie the industry; and there are some principles that we must face, principles that have grown upon us to secure convictions that cannot be changed. I have always been, according to the papers spoken of as

an optimist, I do not just like that word "Optimist." It seems to me a word that impresses a view of what you would like to be, as Cazenove said of the biographies of men that he liked to read, "the trouble with autobiographies is that they are descriptions of what men would like to have been," and so I always think optimism is a sort of spirit of what you would like to see happen, and my feeling in regard to business and industry has been somewhat different from that. I have always hesitated to use the term "optimism" because I have believed in the fundamental outcome of business in this great country. In 1889, when I started in the steel business, this whole great country consumed less than a million tons of steel a year, and now we are running at the rate of 50 million tons of steel a year. I rolled the first steel beam that was ever used for these tall buildings you gentlemen in New York see going up, in the Homestead Mills, nearly 40 years ago. Today, the buildings in this country take 3½ million tons of steel a year for buildings alone, and at our Bethlehem Works we turn out three ordinary 10-story buildings a day, and yet we are not able to keep up with the demands of the country. In 1889, when 700,000 or 800,000 tons of steel a year were used in this country, we thought we had almost reached a zenith of this industry and I remember when planning a rail mill for Andrew Carnegie many years ago, I made it for an output of 1,000 tons a day. He did not believe that this country would ever require that amount, and criticised this "absurd expenditure." Today, under normal conditions, it takes 3 to 3½ million tons of rail to keep the railroads up to standard, to say nothing of new construction.

Mr. Carnegie, as many of you know, owed a large part of his fortune to this optimistic attitude. I have felt all my business life, and I feel the same today; I have builded many mills and many industrial enterprises in my lifetime, and I am able to make this remarkable statement—that every time I have builded a works, I have made it larger than is necessary for today, but to be useful in the time to come, and yet I have never builded a works that, by the time it was finished and in operation, was found to be of sufficient size to meet the growing demands of this country. Now that is my keynote, there are certain things that we must do if we are to have good good business here; we can only be permanently industrious, permanently happy and permanently prosperous when we have good business in every country in the world, and especially in Great Britain. I am one of the men that believe in a fair profit for a fair investment. I do not believe in profiteering. I do not believe in increasing profits when you can do it. I think the example of Judge Gary, of the United States Steel Corporation, during a period gone by, when he maintained the price for steel some $15 or $20 below what could have been obtained, to have been a big step forward in business that stood for the good of the whole industrial world, and so I feel that in all industrial ventures, the investors are entitled to a fair return upon the capital invested, that the labor employed in this industry are entitled to a fair return upon their work. I always illustrate business as a three-legged stool, there are capital and labor and management; the three must stand together to support the stool in its burden. Withdraw any one of them and the whole structure must fall and therefore we must see that labor receives its proper return, that capital receives its proper return and that management in a great business be adequately rewarded for that which it has to do. Now, if that be true of business and its three component parts, how important it is that the whole world should work co-operatively for the good of each other, and for their own good.

The Sherman Anti-Trust Law.

I am not one of the men that believes that this so-called Sherman Law has done great good. I think it has done great injury to the industry of the country, because no man is going to create or set up a real trust for anything, because it must fail. A trust, as I understand it, is that form of organization which has been made for the purposes of some artificial condition, the artificial raising of prices, of restriction of profit, or some method of getting undue profit. No business in the world can long succeed on such a basis because they but invite competition. The investment of capital that offers such liberal terms as are then apparent must mean ultimate destruction. How many of you can ever point to anything that has been success-

ful on that basis? Now the laws have been altered to permit us to do things for exportation.

International Business Co-operation.

Why should we not, men engaged in industries in your great country, in France if you will, and in America, work together to the best interests of the business of the whole world? I am perfectly satisfied if my British friends in the iron and steel trade take orders for a certain part of the foreign trade; that is, in competitive market, if they in turn will give me a fair chance and a fair price for my due proportion of the business of that country, and when we come to this destructive competition in foreign markets and foreign business there are advantages that you have and advantages that we have, no one of which I will go into except in the briefest possible way. Speaking of my own industry, I know we can manufacture cheaper than you do in Great Britain, but I know also that you can ship a great deal cheaper than we can. I know, notwithstanding my distinguished friends here, that you can do foreign banking, invoicing, letters of credit, far better in Great Britain than we do here; but on the other hand, we have conditions the result of which will be competition that is destructive to both our profits and both our successes. Great Britain's fault —I will not call it a fault—today is with reference to the fact that labor and capital there do not seem to understand each other quite as well as we do here. We are not perfect, but in Great Britain I think it is worse, because you are not getting the efficiency from labor in your works there that we here get per man, and it is only with the co-operation and understanding of labor that you will be able to get your costs in these great basic commodities as low as we get our costs for export business. On the other hand, we have got to do something to help our situation, but the keynote of all our situations ought to be one of economy. What can we do to further the economy of the delivery of our products to the various quarters of the globe? The Steel Corporation will illustrate that fact when they have mills in the various parts of the United States, that enable them to ship their productions with the lowest freight and the lowest cost; now the same condition of business should be world wide. Great Britain and the representatives of their business here, should accept the principle that international business ought to be of such character that the manufactured products of nations can be delivered to the country that will permit their delivery, with the greatest economy for the world's good and the good of industry generally, and in that particular we ought to work closer together. You and your friends represented here, you and your friends in Great Britain want to get rather different ideas sometimes of the American character. You know, we have faults, many of them. I am not losing sight of the fact that American goaheadedness and breeziness have led us into many errors. I shall always remember an American I met in France, who said, "these are the dumbest people I have ever seen. I have been here three weeks now, and they do not speak English yet." You also have your faults. I could tell you some of them, but I am not going to do so in this company; I am really afraid to do that. But let me once just center that great idea to which we, as business men, will co-operate, to which I think you as business men will co-operate, and that is, closer and better understanding of all of our markets, our manufactures, the realization of each country's natural abilities, of their natural products, and that which they can do best, the realization upon our part of what you can do best, but above all the coser relationship between the great English speaking nations of the world that will enable us to go ahead for the good of humanity, for the good of industry, for the good and promotion of everything that makes life better and sweeter, and makes life worth the living; these are the things in which you will do more good than you will do in the individual promotion of your individual industries.

The question is so big and broad; it is not one of a controversial character; it is one of fundamental truth and fundamental principle of every organization that is organized in this country or any one that is organized in foreign countries, especially England, that will keep that note in front of them, will be working good for their own industry as well as the industry of the nations allied with them.

England and America The Workshops of the World

England and America must be the workshops of the world, and they must be the shippers to the world. German efficiency has been destroyed for many years to come, but we must look out for the fact that ultimately German labor after being tried in the crucible of the ordeal through which they are now passing, is going to play an important part in the industry of the world; we must realize that fact, because some day we will have to meet it, and we will wake up to the realization of the fact that, although we have won this great war, the German people, by reason of their efficient labor, their willing labor, will reap the real benefit of the war. Now, it may not be in our time, but it will come, unless we awake to the realization of our own importance, of our own co-operation and the necessity of our reaching the greatest economy in co-operative work. I think I never publicly expressed it in London, that the greatest step forward that was ever taken towards the harmonizing of the English-speaking peoples to an appreciation of qualities of each of them, was the masterly big manner in which England handled its debt to America, the promptness with which the British people paid and handled and arranged for it, that has left a note of confidence throughout this country that no other act of military or political character can equal, and therefore, I congratulate you on that.

The Kitchener Contract

It was my good fortune to do much business with Great Britain during the first year of the war, as your good chairman has said. I met Lord Kitchener, day and night, for several days; we talked over his requirements, what we could do, what we might be able to do, and how quickly, and under what conditions. I am obliged to say that the question of price never entered into it. When the whole thing was done and the agreement made as to what we could do the question of price was mentioned, and I said, "Lord Kitchener, I think, on account of the advance of war prices and of doing things during the war period, I am entitled to 30% above prewar quotations," and he said, "That is fair," and that is the only question that arose in a contract amounting to $600,000,000 with Great Britain. This contract with Great Britain was written on a single sheet of note paper, and when this great undertaking was completed, it was settled without dispute of the slightest character as to act, intent or amount, in the whole transaction. Therefore, I think that the broad inclination of the great British nation is to treat broadly and fairly with the great American nation, and these are steps that help us to do it. I may have done things in my life of which you speak so glowingly, and of which I personally think so little, but there is only one thing in which I will not take off my hat to any man in the world, and that is, my loyalty and love for my own country and my own people, and there is no man that occupies the position, as I claim I do, that shows a greater sincerity and desire to have the relationship of our two great countries so intimate that—like the flag that, 30 years ago, flew over Skibo Castle—the English with the traditions and love of people and country, and the great American nation, be sewn so closely together, cemented so inseparably, that no human event can ever tear asunder bonds that have bound us for so many years.

Gentlemen, my observations have been very general because it is impossible for a man to be specific upon a question as big and as broad as this; it is bigger than any individual operation. When it came to the time for disarmment, although my company had millions upon millions invested in this work, if I had felt it was for the good of humanity as I said before any compatriots and Marshal Foch, if it were for the good of the whole people, I would gladly sink them to the bottom of the Atlantic Ocean. And so I feel now. It is not my interest, nor your own, in individual cases, it is the broad interest that must guide us in this, and to you Mr. President, as representing American business individually, and the many people in it, to you and your splendid Society, I grasp your hand. I pledge you my support, my loyalty and my ardent wish that the wildest dreams of the practical theorist may realize in the years to come.

TOPICAL TALKS ON IRON

CXX- Performance of Blast Furnaces

One might suppose that so old an insitution as the iron blast furnace would have been practically perfected years ago, particularly as the operation of a blast furnace looks like a very simple one. Blast furnace performance has, however, been constantly improving, and particularly startling news of the performance of one new stack has just come out in the past few months.

The production of pig iron, in general, increases very considerably from year to year. It used to double on an average every ten years. One might suppose that the number of blast furnaces increases. Consulting the last annual statistical report of the American Iron & Steel Institute one finds, however, that there were 451 furnaces on January 1, 1915, and 450 on January 1, 1922. This table would show that the number of furnaces is stationary, while the total production increases. However, if one consulted only the report for 1910 he would find plain statistical evidence of an increase, there being 424 furnaces at the beginning of 1906 and 474 at the beginning of 1911. Statistics are useful, but they must be studied broadly and intelligently. There was a decrease from 1911 to 1915. If one goes back farther still he finds, in the report for 1893, 516 furnaces in existence June 30, 1894, but only 108 of them were in blast. Back in the eighteen-seventies there were more furnaces still. It took many more furnaces then to make two or three million tons of pig iron in a year than it now takes to make 40 or 45 million tons.

There is so little to be salvaged from a blast furnace that stacks are often kept in nominal existence long after their real usefulness is ended. Then, too, the prince or pauper industry may sometimes twist the kaleidoscope that a good bit of money can be made out of an old blast furnace. One thing in favor of a poor furnace is that when a period of heavy demand comes it is not loaded with cheap orders like the best furnaces usually are. In the old days raw materials were easier to assemble than in recent years. Of late when pig iron has gone up, the raw materials have been scarce.

As the total production of pig iron increases the average output per stack decreases, because smaller and less fit furnaces come in. When there is particularly heavy production of pig iron there are one and a half times or twice as many furnaces in operation as would be needed if all the furnaces were able to produce as much as the best.

It used to be a favorite pastime of various observers, including scrap dealers, to theorize that not enough blast furnaces were being built. The industry would be unable to meet the increasing pig iron demands. The scrap dealer in particular felt that with the growth in steel making, unaccompanied by corresponding building of furnaces, his scrap would become very valuable. The situation, however, has been met by the blast furnace performing better and better.

From the earliest days there have been almost constant changes in blast furnace design and blast furnace practice. Early in the eighteen-seventies there was an era of stacks being made higher and higher, and when they did not perform in proportion the idea of height was reduced. It was afterwards found that one reason was that the bosh diameter was not increased sufficiently, another reason being insufficiency of air. It seemed strange, later, that such points were not fully considered. Most furnace managers probably consider it a very old story that the stock must be evenly distributed when charged, in order to make the best iron and get the maximum output, yet it is a fact that only in the past few months a furnace has been discovered where for years the material had been dumped all on one side, and by distributing the stock uniformly the furnace output was greatly increased.

With the building of the Duquesne blast furnaces, the first two of which were completed in 1896, there was ushered in the "600-ton furnace" and various other "600-ton" furnaces were built. It was years before any of these furnaces actually averaged 600 tons a day for any considerable time, though they did much better than furnaces of older design.

The latest news in blast furnace performance comes from Warren, Ohio, in the Mahoning Valley, where there is a furnace that holds a number of records. One record is its costs of building, a million dollars or so greater than any other furnace. Another is its low labor cost per ton, due to the refinement in the machinery and the high daily output. This furnace produced 24,758 tons of pig iron in March, 1923, or 798.6 tons a day, making a new record for any stack, by a large margin. At the end of that month the country was producing pig iron at a new high record rate, but it would require only 150 furnaces of that sort to produce the amount of iron. It would be injudicious to undertake here to make a precise statement as to the cause or causes of the remarkable performance. Some of the credit would have to be distributed, to the coke, to the lines of the furnace, to the attendant equipment, to the management, to the use of scrap and to the use of a percentage of lump ore in admixture with the usual fine ore. There is no particular reason to suppose the performance cannot be duplicated.

Judging by the past, and by present trends as well, it is not improbable that production per stack will so increase in future as to keep the number of blast furnaces substantially stationary, with increasing total production. Periods of industrial depression will have much influence, as the furnaces with high investment and low operating cost will naturally dominate the situation.

IRON AND STEEL EXPORTS INCREASING

United States exports of iron and steel in February amounted to 135,182 long tons, an increase over the preceding month of 10,738 tons, according to the iron and steel division of the Department of Commerce. Outstanding gains over January were in rails (6,247 tons), steel bars (2,837 tons), galvanized sheets (2,780) tons, plates (2,648 tons) and black steel sheets (1,860 tons). The noticeable losses were in semi-finished steel products (2,830 tons), structural shapes, plain material (2,291 tons) and iron bars (1,853 tons).

The following table analyzes February exports of iron and steel by commodities and affords a comparison with January's trade:

Articles	Jan.	Feb.
Steel rails	9,980	16,227
Steel bars	11,391	14,228
Boiler tubes and welded pipe	12,126	12,708
Iron and steel plates	7,848	10,496
Galvanized sheets	7,600	10,380
Structural shapes, plain material	10,943	8,652
Black steel sheets	6,508	8,368
Ingots, blooms, billets sheet bars and skelp	10,564	7,734
Tin plate, terne plate etc.	5,894	5,607
Barbed wire and woven wire fencing	5,006	5,334
Plain wire	5,171	5,184
Structural materials, fabricated	4,914	4,767
Hoops, bands and strip steel	2,676	3,233
Pig iron, not including ferro alloys	2,526	2,786
Scrap	1,663	2,647
Wire nails	2,131	2,131
Rail fastenings, switches frogs, etc.	2,615	1,964
Cast iron pipe and fittings	2,687	1,746
Wire rods	1,696	1,624
Car wheels and axles	634	1,547
Iron bars	3,300	1,447
Bolts, nuts, rivets and washers, except track	1,507	1,124
Wire n.e.s. and manufactures thereof	1,051	1,113
Iron castings	843	843
Wire rope and cable	344	753
Black iron sheets	1,003	698
Nails other than wire including tacks	502	632
Malleable iron pipe fittings	439	419
Forgings	258	211
Steel castings	73	123
Wire cloth and screenings	167	112
Insulated wire and cable	188	100
Horseshoes	76	90
Metal lath	24	56
Alloy steel bars	61	53
Ferro silicon	33	39
Ferromanganese and spiegeleisen	2	6
Total	124,444	135,182

During February shipments abroad of wood screws amounted to 583,909 gross, which compares with 984,166 gross in January.

TECHNICAL AND COMMERCIAL ABSTRACTS

Labor-Saving Ideas—An illustration of the American manufacturer's attitude toward labor-saving machinery may be had from the experience of a machinery salesman who interviewed the manager of a branch factory for one of the largest corporations in the country. The subject under consideration was the handling of coal from cars on the railroad siding to the boiler house bin. After obtaining the current cost of handling the coal by hand, the salesman presented indisputable figures which showed, after due allowances for interest on the investment, depreciation, etc., a net saving of 20%. The manager's reply was that he could not recommend an investment unless he could show his company a net return of 40%. This is, of course, an extreme instance, and happened in early 1920, when business was booming, and unskilled labor rather plentiful. Nevertheless it is largely typical of the American business mind on this suject. Another point to be stressed is that machinery being so almost entirely an American product, any considerable application of labor-saving devices would greatly develop a purely domestic industry and aid the general business revival. The money invested in American machinery would go into American homes, from there into American shops, and so back into American industry.—**Industrial Management.**

WORK AND EMPLOYMENT.

Qualifications of Industrial Safety Man—The safety man in modern industry must be a many-sided individual, with patience, tact and ability of high order, according to Marcus A. Dow, president of the National Safety Council, who says that to be successful in his work the head of an industrial safety department must have these qualifications: He must believe in the dignity of his calling. He must be more or less of an engineer, a lawyer, diplomat, physician, accountant. He must avoid "passing the buck" and assume full responsibility for accident conditions. He must understand human nature. He must have a sense of balance, of perspective. He must see his job as an aid to production, not a hindrance. He must see his job as an aid to better industrial relations. He must see his job as a bit of applied Christianity.—**The Blast Furnace and Steel Plant.**

Labor Saving Forced on Industry—"The effects of the restrictive immigration policy now in operation again are beginning to be reflected in the heavy and special machinery field," says the **Iron Trade Review.** "From all directions is coming a demand for equipment which will reduce the number of men required in producing a certain amount of finished product. This demand not only is in the rolling mill and general iron and steel plant equipment field, but in hydraulic machinery, mining equipment, rubber and paper making apparatus, etc. An industrial activity becomes more pronounced, and especially after large numbers of men begin to be diverted from the plants to road and other outside work, demand of this character undoubtedly will increase. On acconut of the growing shortage of labor there promises to be less demand for strictly new machinery than for labor-saving equipment. That is, manufacturers generally will not be so interested in expanding their capacity as in installing equipment, wherever the possibilities offer, which will enable them to produce more with the same man power. With only slight chances for any change in immigration restriction in sight, it appears likely that extraordinary measures will be taken to conserve man power. This situation should prove an incentive for developing real labor-saving devices."

Taking All the Credit—Too frequently in engineering organizations is heard the complaint of the subordinate that the chief takes all the credit, to build up for himself a reputation which he can capitalize. For such self-seeking engineers a paragraph in a recent letter from one of our most distinguished engineers preaches a good sermon. "When I was starting professional work," he writes, "one of the older men who did a good deal to get me started in life told me that to succeed in professional relations it was necessary to let the other fellow have most of the credit. If a man could do the required work and get

some fair share of the compensation that belonged to him, it was better to let the other fellow have some of the compensation and as much credit as he could get. Looking at it now, it is quite clear to me that my old friend was right. If a man gets too much credit for anything he does, he is on the road to trouble." This is pragmatic and not ethical, and should therefore appeal to the man who is in the habit of grabbing all the credit. His aim is to benefit himself and he is not to be influenced by considerations of what is right and proper. When, therefore, a successful engineer, who firmly believes in the essential rightness of a becoming modesty, testifies to the practical value of such modesty, his words take on a double significance. When a course is both right and profitable only a fool will not follow it.—**Engineering News-Record.**

Employees as Share Holders — The Steel Company of Canada, with its numerous units of comparatively small size, well distributed throughout the industrial communities of Ontario and Quebec, designed for a wide diversity of products, has had a comparatively fortunate experience during the recent industrial depression. As share holders the workmen have not had to face the trials endured by those of other Canadian steel plants whose employment has been less regular. The method is no longer an experiment. The recent career of the Steel Company of Canada demonstrates that the workmen will invest in safe ventures.—**Iron and Steel of Canada.**

FOREIGN.

The Ruhr Occupation — "The French occupation of the Ruhr valley has been of benefit to industry in this country, particularly to the iron and steel trades and to the coal trade," says the **Engineering Review** (London). "Orders which would otherwise have gone to the Continent have been diverted across the channel, and the outlook in the coal fields and in the iron and steel districts is brighter than it has been since the days of the post-armistice boom. Advantage has been taken of the demand for export coal to raise the price to the home consumer. There does not appear to be any justification for this, beyond the fact that the demand makes it possible, and that the coal owners having suffered losses during the recent industrial disputes are naturally tempted to make hay while the sun shines—or, as the simile is not very apt, raise the price to the domestic consumer while the Winter lasts, and so recoup these losses. From the business point of view the policy is no doubt sound, but the coal owners need not complain if they receive scant sympathy when next they come to the public with their tales of woe."

Railway Situation in India—Railway rehabilitation costing $750,000,000 is to be carried out on the railways of India during the five years 1923-1927, this program having been approved by the Railway Board. This includes new rolling stock and the completion of some lines already under construction, but extensions will be subordinated to the improvement of existing lines which have run down as a result of the war and subsequent financial conditions. The rehabilitation work includes second, third and fourth tracks on main lines, putting heavier spans on long plate girder bridges, enlarging and building new freight yards, improving numerous stations and station yards, and providing new water and coaling stations. Four new shop plants are to cost from $10,000,000 to $17,500,000 each. In addition there will be an enormous amount of track work to put the lines in condition for heavier engines and traffic. — **Engineering News-Record.**

England Losing Ground in Indian Trade—During the years of war England and her possessions—and also the other Allied powers, with the exception of Japan—were too occupied to be able to maintain their import trade with India. This gave Japan an unique opportunity which, naturally, she was not slow to avail herself of. Japanese goods were exported from Japan to India in large quantities. Japanese representatives poured into the country, and a large trade resulted. But by degrees the quality of the goods imported from Japan showed signs of deterioration; dissatisfaction was expressed by both importers and purchasers, so that when peace was declared and other nations freed to devote more attention to commerce, they found conditions here (India) particularly favorable for resuming trade, and in some cases for starting it. The Amer-

icans were first in the field, and with their usual "push" and thoroughness they quickly secured a lucrative market for their goods, which were and still are imported into India in large quantities. The quality of these imports was good, the prices compared favorably with Japanese goods, which—whether merited or not—had become labeled as "shoddy", and consequently the public became good customers of Uncle Sam.—**Indian Industries and Power** (Calcutta).

American Opportunities in Java—This is the time to consider the opportunity given to American manufacturers to acquaint the fifty million people of the Netherlands East Indies with their product. These islands are on the market for all kinds of American goods, which are gaining in popularity as the people are getting better acquainted with them. The fourth Netherlands-Indian Fair at Bandoeng, Java, will be held from July 28 to August 12, 1923. Space rates have been lowered considerably, and other facilities to make the fair a success have been arranged. — **American Industries.**

IRON AND STEEL.

Small Electric Furnace for Quick Heats—"To fill the demand for an electric furnace of small holding capacity, which can be used for a variety of purposes, particularly when small quick heats of different mixtures are desired, and where ready control of the furnace and charge is essential, the Booth Electric Furnace Company, of Chicago, has put on the market a furnace which will melt from 50 to 100 pounds of brass, iron or steel," says the **Iron Age.** "It is especially designed so that the electrodes are arranged horizontally for melting brass and metals which volatize readily and vertically for melting iron and steel. No foundation is required for the furnace."

Carburization of Steel—An investigation of the effect of the quality of steel upon its carburizing properties, and particularly its hardening properties after carburization, was suggested to the Bureau of Standards by commercial metallurgists as a problem of very considerable commercial importance. In order to obtain a wider expression of opinion on this matter, a circular letter was sent to approximately 100 prominent metallurgists. The replies which have been received all indicate the desirability of carrying out such an investigation and the practical importance which the results would have. As soon as the necessary material (abnormal steels) can be obtained, the work will be started.—**Iron Age.**

Preventing Chain Failures—How can chains, especially sling chains, be kept from breaking? What are safe working loads? Is annealing a good thing and how should it be done? An answer to these three common industrial plant problems, the subjects of a recent study by the National Safety Council, is found in the following conclusions: 1. Before placing a chain in service, either the total length should be carefully measured or measured sections three feet in length should be laid off with punch marks. 2. All chains should be given careful inspection regularly—daily, if in constant service—for cracks or other defects. 3. The length of the chain, or the distance between punch marks, should be checked periodically— at least once in six weeks if in constant service —and the chain should be discarded if it has stretched more than one third of a link (for average size chains) in three feet. The diameter of the metal at the ends of links should be checked to detect excessive wear. 4. Provided these precautions are taken, periodic annealing is of some value as an additional safeguard. There is no recognized standard method of annealing chains, and the desirable temperature may vary according to the kind of chain. 5. Other important points in connection with the safety of crane slings were noted as follows: Rings and hooks must be of sufficient size and strength; the hook must not be loaded on the point; sudden jerks should be avoided; load should be hooked onto in a manner not involving unnecessary strain on the chains; too great an angle between the two parts of a double sling should be avoided.—**Railway Review.**

Disposes of Dust From Sand Blast—Profitable use for the dry dust accumulating in its sand-blast dust arresters has been found by a Pennsylvania foundry. The local highway department, after trying out the dust for covering newly laid asphalt until it sets, has found that the dust gives satisfactory

service. Consequently the steel company has been able to make arrangements with the highway department to take all the dust accumulating in its sand-blast apparatus. The dust is bagged in paper cement bags furnished by the highway department, which also pays the handling charges. — **The Foundry.**

Study of Pacific Coast Trade—One of the essentials of successful merchandising is to study your market, preferably at first hand. With this in mind, many of our machine builders go abroad or to South American countries in the hope of building up, or of rebuilding as the case may be, a foreign market for their machines. In too many cases this is done while excellent domestic business is being overlooked. It is particularly true of the Pacific coast. While no statistics are available, it is probably safe to say that more machine builders of various kinds have traveled in foreign countries than have studied the shop conditions of the Pacific coast from a sales point of view. Men of the east who visit large shops such as those in the automotive field get the erroneous impression that these are typical American shops. They do not realize that they are the exception, and that the greater majority of shops, even in the east, employ less than fifty men. In the newer sections of the country the large shop is, of necessity, the exception. If anyone infers from this, however, that the business of the Pacific coast is not worth looking after, he is sadly mistaken. For although the shops are comparatively small, they are often equipped with more modern machines than many eastern shops. A careful survey of the situation, reinforced by the opinion of men who are in a position to estimate very closely, places the total machine-tool business of the Pacific coast at five million dollars, in round numbers. — **American Machinist.**

Cast Iron for Enameling—As it has been claimed that gray cast iron, for example such as that used for bath tub casings, varies widely in its enameling properties, the Bureau of Standards has been examining specimens to determine wherein the differences lie. Twenty speciments of cast iron were obtained from different manufacturers and examined as to micro-structure, but no differences which could be considered of importance in affecting their enameling properties have been found. The work, however, will be continued, according to reports of the Bureau of Standards.— **The Foundry.**

METALS.

Copper and Brass Records—Not alone in iron and steel were records made in March. The copper and brass industries made their contributions. It is estimated that more copper was melted by the brass makers of the United States in March than in any month of the industry's history, not excepting the war period. Also in March deliveries of copper into consumption were equal to those of any month on record. If iron and steel are broadly barometric, copper or brass are a measure of the soundness of business conditions and of widely ramifying activities. During the war vast quantities of brass and copper went into cartridge shells and other war materials. The volume was an index of intensive war effort. Today a similar volume of copper means a healthy demand for building and for electrical development and a long catalogue of everyday uses. It means a broad expansion of business, a generally healthy condition of industry and a rising tide of prosperity.—**Iron Age.**

Eliminating Iron in Brass Alloys—"That iron is a dangerous impurity in brass and copper alloys is well established," says P. W. Blair in **The Foundry.** "Many attempts have been made to produce a good inexpensive bronze by combining copper with iron, but such experiments have resulted in proving that unless carbon in the iron is removed the results will be unsatisfactory. Since all irons contain carbon, the safe solution is to keep the iron out. When iron or steel finds its way into the crucible with brass chips or turnings, it does not alloy, but produces a dangerous mechanical mixture. The iron forms into small nodules, which seem to absorb all the carbon in the surrounding metal, forming themselves into hard steel. These nodules vary from a small pinhead to the size of a pea, according to how much the metal has been stirred while molten. It has been demonstrated that with the utmost precaution it is difficult to keep

brass chips free from iron and steel. In shops were both brass and iron are machined the brass chips always contain iron. Washers, screws and various other articles in iron and steel also manage to get in unobserved. If any one of these happens to get into the melted metal, bad castings are to be expected. Fluxes and furnaces of different kinds have been tried out, but so far there is only one remedy and that is to either use a flux which will remove the carbon or else eliminate the iron entirely, and the last mentioned is recommended."

RAILROADING

An Optimistic Note.—A railway president whose lines traverse a dozen stsates of the Union, in ten of which the state legislatures are now in session, finds cause for optimism in the fact that there is no real demand for legislation hostile to the railroads in any of these bodies. He regards this as a favorable sign of changing public opinion in regard to the efficiency of the transportation system under private ownership and management. Nearly all of these state legislatures, it is said, have their sprinkling of radicals—what legislative body has not?—but they are in such a hopeless minority in these particular states that their attack on the railroads, when indulged in, falls flat on patriotic American ears.—**Railway Review.**

Engine House Building.—The building boom is said to be solving the national housing problem, but is it solving the engine housing problem? An authority on railway fuel use points to the fact that congested locomotive terminals combined with inadequate and antiquated engine houses are responsible for a greater waste of fuel in Winter time than any other conditions. It is stated that stand-by fuel losses at locomotive terminals in Winter represent a loss of more than 4,000 tons of coal per month on one railway system.—**Railway Review.**

Physical Achievements of the Railroads During the Year—"Condemnation of the railroad managements for every sin in the calendar is a popular pastime both with those luminaries who grace our legislative halls and with certain editorial molders of public opinion," says the **American Machinist.** "If some of the condemners would show a little breadth of vision by praising the roads for the good things they do, their fulminations might be listened to with more attention. The record of railroad accomplishments as compiled by the public relations committee of the eastern roads has just come to our notice, and is worthy of mention. Most of us have seen too much of the effects of the coal and shop strikes on the roads with which we are most familiar to question the harm they did to the roads in general. Under such conditions it is rather remarkable that the car loadings for the last six months of 1922 were less than 1% below those of the corresponding period in 1920, the high point in railroad history. The reduction by 25% of the number of bad order locomotives between September 15th and February 15th is an outstanding achievement when one considers the layer effect of the shop strike and the hopelessly inadequate and archaic equipment of the average railroad repair shop. According to the bulletin, the purchase of 136,718 freight cars, 2,709 locomotives and 2,382 passenger cars constitutes the largest single addition to railroad capacity since 1916. This is commendable but would have been far more so had provision been made for the shop equipment necessary to keep the new rolling stock in good shape. After all is said, it is a rather discouraging problem for the mechanical department to maintain the modern locomotive with machine tools designed and bought to care for locomotives half its size. The railroads did a wonderful job in 1922. Let us hope they will do even better in 1923. They will have to, judging from the traffic that must be moved to keep industry supplied."

Serious Phases of Radio—Just how deeply radio has permeated daily life was evident at the recent meeting of the Technical Section of the National Electric Light Association, in New York City. Naturally, as a topic of conversation, it holds first place with the "fans," but in other and more important ways it wormed itself into most of the committee deliberations. As an operating asset both straight radio and carrier current received much attention, particularly among these interested in the operation of large transmission systems. As a producer of hazards because of the erection

(Continued on page 240)

COMPARISON OF METAL PRICES

	Range for 1921.		Range for 1922.		Range for 1923.		Closing April 30,
Pig Iron.	High.	Low.	High.	Low.	High.	Low.	1923.
Bessemer, valley	32.00	20.00	33.50	19.00	31.00	27.50	31.00
Basic, valley	30.00	18.00	30.50	17.75	31.00	25.00	31.00
No. 2 foundry, valley ...	33.00	19.50	35.50	18.75	31.00	27.00	31.00
No. 2X fdy. Philadelphia	33.79	19.84	34.76	21.34	33.16	28.76	32.76
No. 2 foundry, Cleveland	33.56	20.56	35.50	19.56	32.50	27.50	32.50
No. 2X foundry, Buffalo .	31.25	19.00	34.25	19.50	30.25	26.75	29.25
No. 2 foundry, Chicago ..	33.00	18.00	33.00	18.50	32.61	29.11	32.61
No. 2 Southern, Birm. ...	34.00	16.50	28.00	15.00	27.00	23.00	27.00
Scrap Iron and Steel.							
Melting Steel, Pittsburgh	17.00	12.75	22.00	14.00	27.00	20.50	24.00
Heavy steel scrap, Phila.	16.00	10.00	19.00	11.00	26.50	18.00	22.00
Heavy melting steel, Chi.	16.50	10.00	19.00	11.00	24.50	18.50	22.00
No. 1 cast, Pittsburgh ..	22.50	15.00	25.00	16.00	27.50	22.50	27.25
Iron and Steel Products.							
Bessemer rails, mill	45.00	40.00	43.00	40.00	43.00	43.00	43.00
Iron bars, Pittsburgh	3.06	1.85	2.55	1.80	2.82	2.35	2.82
Iron bars, Philadelphia ..	3.85	1.80	2.58	1.70	2.82	2.32	2.82
Steel bars, Pittsburgh ..	2.35	1.50	2.25	1.35	2.40	2.00	2.40
Tank plate, Pittsburgh ..	2.65	1.50	2.50	1.35	2.50	2.00	2.50
Structural shapes, Pitts..	2.45	1.50	2.25	1.35	2.50	2.00	2.50
Grooved steel skelp, Pitts.	2.45	1.50	2.10	1.40	2.50	2.00	2.50
Black sheets, Pittsburgh.	4.35	2.75	3.75	3.00	4.00	3.35	3.85
Galvanized sheets, Pittsb.	5.70	3.75	4.75	4.00	5.50	4.35	5.00
Tin plate, Pittsburgh ...	7.00	4.75	4.75	4.60	6.00	4.75	5.50
Wire nails, Pittsburgh ..	3.25	2.50	2.70	2.40	3.00	2.70	3.00
Steel pipe, Pittsburgh...	57½%	71%	66%	71%	62%	66%	62%
Connellsville Coke at Ovens.							
Propt furnace	5.00	2.75	15.00	3.75	9.00	6.00	6.00
Prompt foundry	7.00	3.75	16.00	3.75	9.50	7.00	7.25
Metals — New York.							
Straits tin	65.00	32.50	39.00	25.50	51.50	28.75	44.75
Lake Copper	20.50	13.75	14.00	12.00	17.50	12.75	16.62½
Electrolytic copper	19.50	12.75	13.75	11.50	17.25	12.50	16.25
Casting copper	19.25	12.75	13.00	11.25	16.87½	12.25	16.12½
Sheet copper	29.50	22.50	21.50	19.50	25.50	19.25	25.50
Lead (A. S. & R. Co. price)	9.25	4.75	5.00	4.00	8.25	4.70	7.75
Zinc (spelter)	9.85	6.00	6.10	4.25	8.35	4.82½	7.20
Chinese and Japanese Ant.	11.62½	5.20	6.00	4.45	9.00	4.15	7.75
Aluminum, 98-99%	32.75	22.00	26.00	17.00	26.00	16.50	26.00
Silver	137	59¼	73⅝	52⅝	73¾	62⅜	68⅜
St. Louis.							
Lead *	9.15	4.45	5.05	3.90	8.50	4.35	7.60
Zinc (spelter)	9.50	5.50	5.60	4.12½	8.00	4.47½	6.85
Sheet zinc (f.o.b. smelter)	12.50	11.50	11.50	8.50	10.00	7.50	9.65
London.	£	£	£	£	£	£	£
Standard tin prompts	415½	198	210½	148	232	139	210¾
Standard copper, prompts	122	70½	75½	65¼	76¼	57⅛	70½
Lead	52⅜	21½	26	16½	29⅝	19½	25¾
Zinc (spelter)	63	22½	28¼	23½	39⅛	23⅞	32¼

* Outside market.

COMPARISON OF SECURITY PRICES

Iron and Industrial Stocks.	Range. 1920. High.	Low.	Range. 1921. High.	Low.	Range. 1922. High.	Low.	Range. 1923. High.	Low.	Closing April 30, 1923.
Allis-Chalmers	53⅞	26½	39¾	28¼	59¾	37¾	51¼	43	43
American Can	61¾	21¾	35½	23½	76½	32⅛	106	73½	90⅜
American Car & Fdy...	147⅜	111	151	115¼	201	141	189	166⅞	172¾
American Loco	109¼	74	110¼	73½	138½	102	139⅜	120⅛	130¾
American Smelt. & Rfg.	72	29¼	47¼	29⅝	67½	43⅝	69½	53	60½
Am. Steel Found., new.	50	26	35	18	46⅛	30¾	40⅞	35½	37⅞
Am. Zinc & Lead Co. ..	21¾	5¾	14⅜	6¾	....	....	....	....	....
Anaconda Copper	66½	30	50¾	31¾	57	45	53½	45⅛	47¼
Baldwin Loco	148½	78	100⅜	62¼	142¾	92¾	144¼	127⅝	132⅞
Bethlehem Steel B	102½	48⅞	65	41½	82¼	55½	71⅞	60¼	65½
Butte & Superior	29¼	8	22⅛	10	35¼	20⅜	37⅜	27	27
Cerro de Pasco	61⅜	24¼	36½	23	46⅜	32⅞	50½	42½	43½
Chile Copper	21¼	7¾	16⅞	9	29¼	15⅛	30⅝	26⅛	26⅝
Chino Copper	41⅝	16⅜	29½	19½	33⅜	22¼	31⅞	24⅜	25
Colo. Fuel & Iron	44¼	22	32¾	22	37⅜	24	34⅞	25¼	31⅛
Crucible Steel	278½	70	107½	49	98⅜	52¾	84½	67½	75
General Electric	172	116½	143¾	109½	190	136	190	172	177
General Motors	42	10¾	16¼	9⅜	15¼	8⅛	17½	13¼	16¾
Granby Con.	55½	15	34½	15	35	22	33	23	27
Great Northern Ore ...	41⅝	24⅞	35⅜	25⅝	45⅝	28⅞	36	30	31
Gulf States Steel	84⅞	25	50⅞	25	94⅞	44⅞	104⅝	78	90½
Inspiration Copper	61⅞	28	42¼	29⅝	45	31	43¾	33	36½
International Harvester	142½	88	100½	67⅝	115⅞	79⅜	98½	85½	88
International Nickel...	26¾	11⅛	17	11½	19¾	11¼	16¼	13½	13⅝
Kennecott Copper	33½	14⅝	27⅞	16	39⅝	25½	45	35	37
Midvale Steel	52¾	29½	33½	22	45½	26	33⅜	27	30½
National Enam. & Stg..	89½	43¾	66	26	68½	30¾	73	65	67⅛
National Lead	93¼	63½	87	67¾	129¼	85	136¾	120	126
N. Y. Air Brake (new)	....	....	....	....	41⅝	24½	41¼	26⅝	38
Pressed Steel Car	113⅞	72½	96	48	95¼	63	81½	58	64
Railway Steel Spring ..	106½	73	99½	67	126¼	94	123	109½	114
Ray Consolidated	22¾	10	15⅞	11	19	12⅛	17¼	13⅜	15
Republic Iron & Steel.	124¾	55¼	73½	41	78½	43½	66¼	47	56⅞
Sloss-Sheffield	82¼	43	56	32⅛	54½	34½	60	42	55½
U. S. Cast Iron Pipe ...	25½	10½	19	11½	39	16⅛	34½	25⅛	28½
U. S. Smelt., Rfg. & M.	76	29½	39⅜	26	45¾	32¾	43⅜	32	33⅝
U. S. Steel Corporation	109	76¼	86½	70	111½	82	109⅝	101⅜	103⅝
U. S. Steel Corp. pfd..	115¾	104⅛	115	105	123	114¼	123½	117⅞	118⅛
Utah Copper	80¾	44⅛	63⅜	41⅛	71½	59	76½	62½	65¼
Westinghouse Electric.	55⅛	40	52¼	38⅞	65⅞	49⅛	67⅛	55½	56½

BUSINESS TRENDS

BANK CLEARINGS.

The total clearings at 118 cities for the month of April as reported by Bradstreet's were $33,015,000,000, a decrease of 6.6% from March, but a gain of 6.5% over April a year ago. The average daily clearings in April, with twenty-five working days, were $1,320,000,000, as against $1,309,000,000 in March and $1,239,000,000 in April a year ago. New York City clearings for April were $18,610,000,000, which were 9.7% less than in March, and 3.9% below April a year ago, with the average daily clearings in April $720,000,000, against $732,000,000 in March. Clearings at 117 other cities combined totaled $15,005,000,000, a sum 3.7% below March, but 22.6% in excess of April, 1922, with the daily average for March $577,000,000, as against $600,000,000 in April. The percentage of gain in the different groups were smaller than in March in the New England, middle and southern states.

Following are the aggregates of clearings monthly at 118 cities, compared with the like periods in four preceding years:

(Six figures omitted.)

	1923	1922	1921	1920
Jan.	$36,368	$29,450	$32,223	$40,169
Feb.	30,035	26,023	25,443	32,001
Mar.	35,354	31,528	29,672	39,703
Apr.	33,015	30,996	27,688	38,012
May	.....	32,346	27,367	35,527
June	.....	33,558	28,916	36,800
July	.....	31,235	26,834	35,819
Aug.	.....	29,879	26,096	32,799
Sept.	.....	30,712	27,059	34,385
Oct.	.....	34,890	28,974	37,099
Nov.	.....	31,329	29,200	34,407
Dec.	.....	33,775	31,402	36,029
Total	.....	375,721	340,874	432,750

NEW INCORPORATIONS.

During April 1,014 new companies were organized under the laws of the different States with an authorized capital of $100,000 or over, involving $1,006,258,300. This is the heaviest total since January, 1921, when 1,125 concerns were incorporated with a combined authorized capital of $1,243,400,200. In April a year ago 953 companies took out charters with an aggregate capital of $792,372,000.

Since January 1st 3,332 new enterprises have been formed with an authorized capital of $3,117,479,400. In the first four months of 1922 3,631 concerns were incorporated, representing a grand total of $3,009,294,200. Closely associated with the exceptionally good showing for the past month are the activity in general business and indications that it will continue for several months. While the returns are diversified, covering all lines of industry, new oil and gas companies loom up much more prominently in the compilation than for quite a while.

The following are the comparative figures as compiled by **The Journal of Commerce** of companies incorporated in the States with authorized capital of $100,000 or over.

	1923	1922
January	$909,693,800	$ 843,652,900
February ...	700,708,300	591,404,300
March	500,819,000	731,866,000
April	1,006,258,300	792,372,000
May	.....	938,195,000
June	.....	297,557,000
July	.....	634,259,200
August	.....	646,605,000
September ..	.....	650,044,000
October	.....	651,577,390
November ..	.....	808,719,600
December ...	.....	813,901,000
Total	.....	8,400,153,390

BUSINESS ABOVE NORMAL.

Marked increase since the first of the year in percentage of firms reporting business above normal is shown in April checkings by the National Bank of Commerce among representative number of lines of trade in Detroit. A noteworthy feature is the marked decline from March in the percentage of those reporting future conditions as "improving," from 81.58% to 64.94%. Report for this year by months follows, in percentages:

Present Business Conditions.

	Jan.	Feb.	Mar.	April
Above normal	18.52	26.92	35.62	41.56
Normal	59.26	57.69	56.58	48.05
Below normal	22.22	15.39	7.90	10.39

Future Business Conditions.

Improving ...	74.07	80.77	81.58	64.94
Stationary ...	24.69	17.95	18.42	31.17

RAILROAD CAR LOADINGS.

Freight car loadings again increased to a new high level for the year during the week ended April 21st, when the railroads handled 957,743 cars of revenue freight. This is an increase of 10,984 over the number moved the preceding week.

The record for the week of April 21st is near the peak for all time in the history of the roads, which was reached on October 15, 1920. The increase over

BUSINESS TRENDS

the corresponding week of 1922 is 251,606 cars and over the same week of 1921 253,111 cars. It is the largest number of cars loaded since Nov. 17th, last.

The railroads are now moving within 1% of the greatest number of loaded and empty freight cars in their history within each twenty-four hour period, according to further reports received from the car service division of the American Railway Association.

The following table gives a comparison of the cars loaded with revenue freight since January 1st last, with figures of the previous two years:

	1923	1922	1921
April 21 ..	957,743	706,137	704,632
April 14 ..	946,759	700,604	702,116
April 7 ...	895,167	706,013	694,881
Mar. 31 ..	938,725	851,808	663,171
Mar. 24 ..	917,036	837,241	686,567
Mar. 17 ..	904,286	815,082	691,396
Mar. 10 ..	905,219	820,886	700,440
Mar. 3 ...	917,896	803,255	711,367
Mar. 3 ..	917,896	793,115	711,367
Feb. 24 ..	830,223	728,925	659,642
Feb. 17 ..	817,778	780,924	692,007
Feb. 10 ..	853,289	777,801	687,867
Feb. 3 ...	865,675	747,895	699,718
Jan. 27 ..	871,164	740,386	701,605
Jan. 20 ..	865,578	731,109	708,658
Jan. 13 ..	873,251	714,191	715,855
Jan. 6 ...	770,303	599,433	697,641

FURTHER DECREASE IN FAILURES.

In common with other statistical measures, the insolvency returns clearly reflect the improvement in general business conditions, according to Dun's review. Numbering 1,518, commercial failures in the United States during April show practically a 10% reduction from the March total of 1,682, while last month's liabilities of $46,991,941 disclose a contraction of about 3% from the $48,393,138 reported to R. G. Dun & Co. in the earlier period. Except for the short month of February, when 1,508 defaults occurred, the number of April failures is less than that of all previous months since September, 1921, and a decrease of nearly 30% appears in comparison with the 2,167 defaults of April, 1922.

"Failures and liabilities continue to ebb," says Bradstreet's, "the April number being the smallest monthly aggregate, except for the short month of February, recorded since October, while the liabilities also tend to decline, and both show decreases in the aggregate from April last year and from 1915, although New England, the northwest and the far west, reflecting past unsatisfactory trade conditions, still show larger totals than a year ago in April. That the trend is better is perhaps best illustrated by the returns for the four months, which indicate 116 fewer failures a week, or 21% less of casualties than a year ago in the same period. Liabilities tend to ebb more quickly than do failures.

"There were 1,638 failures reported to Bradstreet's for the month of April, a decrease of 2.3% from March, of 16% from April a year ago and of 2% from April, 1915. Liabilities for April totaled $51,662,254, a decrease of 14% from March and of 30% from April last year."

BUILDING RETURNS.

Building activity is at its peak. The total value of building permitted for in March reached the enormous aggregate of $377,831,286 at the 165 cities regularly reporting to Bradstreet's. This was a gain of 55.1% over March a year ago and of 70% over February this year. Expenditures for the first three months of the year totaled $794,440,246, a gain of 52.3% over the first quarter of 1922 and of 11% over the hitherto record second quarter of 1922. While it is risky to predict, it is probably safe to say that the March and first quarter's totals this year bid fair to hold first position for a long time to come.

The appended figures cover the period during which construction in the United States broke all earlier records.

	1922	1921	Change per cent.
Jan. .	$140,517,763	$61,133,167	I 129.5
Feb. .	135,452,009	84,480,760	I 60.4
Mar. .	241,460,369	124,337,045	I 94.1
April .	217,171,601	149,457,989	I 45.3
May .	247,722,281	143,699,279	I 72.4
June .	250,172,411	147,328,348	I 69.7
July .	205,244,105	151,862,525	I 35.1
Aug. .	220,456,973	159,940,684	I 37.8
Sept. .	200,588,817	153,763,676	I 30.4
Oct. ..	209,070,208	172,517,220	I 21.5
Nov. .	206,345,905	148,066,886	I 39.1
Dec. .	223,861,943	141,694,615	I 58.0
12 mos.	2,498,064,385	1,638,282,194	I 52.5

Cities	1923	1922	
Jan., 164	$194,782,219	$141,791,402	I 38.0
Feb., 164	221,826,741	136,274,184	I 62.8
Mar., 155	377,831,286	243,531,710	I 55.1
1st quar.	794,440,246	521,597,296	I 52.3

of antennas in close proximity to light and power wires, it attracted very serious notice. Complaints from the radio-using public of inductive effects from power systems, due both to normal and abnormal system conditions, also came up for discussion. One may call the development a fad or a craze, but it is apparent from the expressions of central station operators over the entire country that so long as the development continues it is likely to produce problems for the central-station operator to meet and solve. The N. E. L. A. committee dealing with safety and accident prevention has already recommended definite educational measures concerning the hazards to be avoided, and other committees of the same association have been formed to consider various phases of the development. The situation is such that central-station operators must as a self-protective measure meet it before it becomes so acute that legislative action is threatened.—**Electrical World.**

Lack of Standard Practice in Railroad Shops—There is perhaps no better example of lack of standard practice on railroads and in railroad shops than in taking care of the wear of the driving boxes and wheel hubs due to the lateral pressures on curbs. Materials used for hub liners on driving wheels and the wearing surfaces on the driving boxes afford about as much variation as can be imagined. Hub liners in the wheel include babbitt of all grades; good bronze rings and linings cast in place of the poorest scrap to be had; rings of boiler plate, rings of low carbon steel, of cast iron and of vanadium steel hardened and ground. There are also many ways of fastening the rings in place, and in one road at least the hub liner is not fastened but floats in the hub. The handling of driving boxes does not vary quite so much, but there are good, bad and indifferent methods and details. This is one of the problems which is practically the same on all roads. All roads have curves which produce wear between the driving box and the hub of the wheel. Such wear is bound to be much worse on some roads than on others, owing to the local conditions, but it should not be difficult to find which method is most economical in resisting wear.—**American Machinist.**

The Transport of Coal—A large factor in the present price of coal to a consumer is the cost of transporting it on the railroads from mine to furnace. The cost is proportionately larger for short hauls than for long hauls, for the cars in which the coal is carried are out of service for loading and unloading about the same amount of time in each case. At times the railroads have been so congested with freight that it was almost impossible to get coal shipments through. There is every indication that the natural growth of this country's business will place further burdens on the railroads in the near future. With these thoughts in mind it would seem wise to consider every proposal that may offer a relief from such a contingency, particularly with reference to the transport of coal. It has been common practice for years to pipe natural gas from the gas fields of West Virginia as far as Cleveland, Ohio. Crude oil is piped from the Mid-west fields to the Atlantic seaboard. These are examples of methods of fuel transport that have proved reliable and efficient, and have imposed no burdens on our railroads. The success attained with these lines naturally has suggested the application of the principle of pipe transport to coal.—**Power.**

A Forward Movement—"Standardization throughout the world is now proproceeding on a scale probably never before approached," says the **Iron Age.** "National standardization bodies at the first of the year were at work in fifteen foreign countries, with the prospect of similar organizations being established in each of the South American republics. Complementing such efforts, centered largely in this country in the American Engineering Standards Committee, is the simplification movement, encouraged if not originated by the Department of Commerce. It aims at reducing wastes in methods, processes, styles, sizes and the like, and perhaps has contributed something already to the sustained productivity of the country against at least the usual number of obstacles. So largely technical is the work that the extent and importance of standardization and simplification have not been recognized in proportion to the benefits conferred upon industry."

IRON AND STEEL MARKET

Our review of a month ago started out by saying: "A few months hence March will probably be designated as the month in which the iron and steel market movement began to round the turn. There were developments in March that clearly suggest this, but while the statement is made that the rounding of the turn has begun it is recognized that prediction is sometimes hazardous."

Now, a month later, less hazard is seen in the statement. April developments tended to confirm the diagnosis, but showed a stiff market situation still. The rounding of the turn was not into a decline, prices going down after going up and consumption decreasing after increasing but into a straight stretch. The question now is how long the trade will run along the straight stretch.

The market is unfortunately embarrassed somewhat by the former conduct of some of its friends, particularly the steel salesmen. Many of these energetic and enthusiastic men have a habit of urging customers to patronize them for the following reasons: That prices are going to advance; that coke is going to disappear; that the railroads are going to be unable to function; that workmen are going to refuse to work for the iron and steel industry. If a buyer has been educated to regard these as the principal reasons why he should buy, the conspicuous absence of these reasons at the present time will very naturally affect his conduct. In all probability the steel price advance is over, with advances of 45 to 50% from the low point of early March, 1922, whereas the entire advance in the great 1905-6-7 movement was only about 30%. As to the next buying argument, the last three weekly issues of the Connellsville Courier, the statistical organ of the Connellsville coke trade, have reported progressive curtailment of coke production by the merchant operators, to hold the situation, the condition being of spot furnace coke being available in the open market at $6.00 when the current contracts are at $7.00, $7.25 and $7.50. As to the next buying argument, the railroads have not broken down but are re-

COMPOSITE PIG IRON.

Computation for May 1, 1923.

One ton Bessemer, valley	$31.00
Two tons basic, valley (31.00)	62.00
One ton No. 2 fdy., valley	31.00
One ton No. 2X fdy., Philadelphia	32.76
One ton No. 2X fdy., Buffalo	29.75
One ton No. 2 fdy., Cleveland	32.50
One ton No. 2 fdy., Chicago	32.61
Two tons No. 2 Southern foundry, Cincinnati (31.05)	62.20
Total, ten tons	313.72
One ton	**31.372**

Averaged from daily quotations.

	1923.	1922.	1921.	1920.	1919.	1918.
Jan.	27.31	19.71	32.62	39.84	32.39	34.19
Feb.	27.98	19.31	29.95	42.72	32.39	34.19
Mar.	30.36	19.26	27.35	43.05	30.47	34.14
Apr.	31.44	20.77	25.80	43.62	28.05	33.88
May	.....	23.91	24.67	44.43	27.74	33.88
June	.....	24.29	23.08	44.80	27.15	33.91
July	.....	24.54	21.57	45.60	27.66	34.04
Aug.	.....	27.74	20.29	47.41	27.99	34.04
Sept.	.....	32.48	20.99	48.98	28.26	34.31
Oct.	.....	31.82	21.15	47.07	28.65	35.36
Nov.	.....	29.47	20.92	41.80	31.48	35.39
Dec.	.....	26.73	20.42	36.31	36.73	35.23
Year	.....	25.00	24.05	43.80	29.91	34.38

Annual Averages

1917	39.99	1914	13.52
1916	20.31	1913	15.42
1915	14.15	1912	14.82

COMPOSITE STEEL.

Computation for May 1, 1923.

Pounds	Group	Av. Price	Extension
2½	Bars	2.40	6.000
1½	Plates	2.50	3.750
1½	Shapes	2.50	3.750
1½	Pipe (1-3)	3.80	5.700
1½	Wire nails	3.00	4.500
1	Sheets (28 ga.)	2.85	3.850
½	Tin plate	5.50	2.750
Total, ten pounds			30.300
One pound			**3.03**

Averaged from daily quotations.

	1923.	1922.	1921.	1920.	1919.	1918.
Jan.	2.59	2.16	3.25	3.35	3.58	3.80
Feb.	2.72	2.14	3.10	3.58	3.58	3.80
Mar.	2.83	2.09	2.94	3.78	3.47	3.80
Apr.	2.99	2.16	2.93	3.77	3.25	3.80
May	....	2.18	2.93	3.71	3.25	3.80
June	....	2.22	2.83	3.67	3.25	3.80
July	....	2.23	2.63	3.70	3.25	3.80
Aug.	....	2.36	2.48	3.80	3.25	3.80
Sept.	....	2.51	2.37	3.80	3.22	3.80
Oct.	....	2.57	2.31	3.67	3.23	3.80
Nov.	....	2.57	2.28	3.50	3.25	3.80
Dec.	....	2.57	2.23	3.28	3.25	3.67
Av.	....	2.31	2.69	3.63	3.32	3.79

Annual Averages

1917...	4.46	1916...	2.80	1915...	1.63
1914...	1.52	1913...	1.72	1912...	1.62

porting week by week new high records in car loading. Finally, as to labor supply, the iron and steel industry got its start in the Winter and is running well and smoothly, while now in Spring it is the contractors, doing outside work, who are in trouble, as they are bidding very high wages to secure men to do the work, including consumption of steel, which it has been planned to do.

In other words, as human affairs in general go, the steel market ought not to be under pressure just because the excitement is over, but there is a possibility that in the not distant future it will be.

PIG IRON.

Our composite pig iron reached its high point, $31.46, on March 23rd after an advance beginning at the middle of December and proceeding more and more sharply. The general advancing movement had begun about three weeks before the coal strike of April 1, 1922, when the composite stood at $19.11. Thus the total advance was 65%, by the composite, but there is some freight included in certain grades entering the composite, and freight rates were reduced July 1, 1922. The advance in f.o.b. furnace prices was nearer 75%.

Having reached its high point, pig iron immediately became quiet as to actual turnover, and during April the quietness turned into stagnation. There were only two outright declines in prices, at Philadelphia and Buffalo, but in some districts, particularly the Mahoning and Shenango valleys, the quoted market price became largely nominal.

PIG IRON PRICES

(Averaged from daily quotations; at Philadelphia, Buffalo, Cleveland and Chicago, prices are delivered.)

	Bessemer, Valley	Basic, Valley	No. 2 fdy. Valley	Basic. Phila.	No. 2X Phila.	No.2Xfdy. Buffalo.	No. 2 fdy. Cleveland.	No. 2 fdy. Chicago.	No. 2 fdy. Birmingham.	Ferro-manganese.*	Comp. Pig Iron.
Feb. 1921	29.63	27.71	28.29	29.28	30.73	30.17	30.15	30.87	27.50	90.00	29.95
Mar. ...	26.70	24.41	25.89	26.54	28.03	29.01	27.70	27.07	25.52	90.00	27.35
April ..	25.00	23.00	24.81	25.47	26.38	27.17	26.77	25.32	23.77	90.00	25.80
May ...	24.32	22.15	23.60	23.70	24.96	25.40	25.56	23.70	21.80	85.00	24.47
June ...	22.88	21.20	22.42	23.54	24.21	22.45	24.17	22.08	20.48	75.00	23.08
July ...	21.34	19.52	20.40	22.40	23.00	20.68	21.66	19.98	20.18	70.00	21.57
Aug. ...	20.00	18.22	19.59	19.70	20.42	19.48	20.56	19.64	18.70	68.50	20.29
Sept. ..	20.00	19.00	20.86	19.14	20.84	20.08	20.56	22.18	19.06	66.00	20.99
Oct. ...	20.00	19.24	21.00	20.50	21.40	20.50	20.56	22.35	19.00	60.00	21.15
Nov. ...	20.00	19.00	20.78	20.50	21.93	19.82	20.56	21.79	18.56	60.00	20.92
Dec. ...	20.00	19.00	20.00	20.45	21.88	19.38	20.56	20.53	17.31	59.00	20.42
Jan. 1922	19.62	18.19	19.38	20.25	21.34	19.75	19.92	19.84	15.96	58.00	19.71
Feb.	19.40	18.00	18.92	19.84	21.34	19.06	19.56	19.18	15.33	65.75	19.31
Mar. ...	19.02	17.89	18.87	19.84	20.73	18.56	19.56	20.48	15.31	62.50†	19.26
April ..	20.88	19.98	20.74	20.75	22.90	20.89	20.76	21.06	15.74	68.00†	20.77
May ...	25.08	24.62	24.00	23.37	25.51	23.44	24.56	23.05	17.63	70.00†	23.91
June ..	25.00	25.00	24.00	25.00	26.62	22.96	24.56	23.83	18.44	68.50†	24.29
July ...	25.00	24.32	24.20	25.54	28.00	25.05	24.56	24.73	18.56	69.00†	24.54
Aug. ...	27.74	26.17	29.04	29.00	31.69	30.42	29.16	28.17	20.37	70.00†	27.74
Sept. ..	33.76	30.08	35.02	30.90	34.76	34.13	35.50	32.53	25.40	77.00†	32.48
Oct. ...	33.23	30.23	31.63	29.50	32.69	31.60	34.27	32.15	27.04	100.00†	31.82
Nov. ...	31.70	28.28	28.78	28.14	30.78	28.41	31.34	30.65	24.12	100.00‡	29.46
Dec. ...	27.78	24.96	25.92	27.50	28.53	26.19	27.38	28.09	22.70	100.00‡	26.73
Jan. 1923	27.50	25.00	27.00	27.90	28.72	27.44	27.83	29.09	23.23	103.00‡	27.31
Feb.	27.75	25.67	27.21	28.25	29.79	28.52	28.42	30.13	24.29	106.00‡	27.98
Mar. ...	29.94	29.44	30.00	29.17	31.86	29.40	31.31	31.46	26.33	117.00‡	30.26
April ..	31.00	31.00	31.00	30.50	33.01	30.17	32.50	32.61	27.00	116.50‡	31.44
Yearly averages.											
1913 ...	16.26	14.77	14.87	16.23	16.56	14.87	15.37	16.39	11.73	57.87	15.42
1914 ...	13.99	12.89	13.02	14.02	14.59	12.84	13.76	14.15	10.25	55.80	13.52
1915 ...	14.90	13.78	13.81	14.88	15.25	13.98	14.31	14.46	10.59	92.21	14.15
1916 ...	23.05	19.87	20.16	20.96	21.20	20.63	20.40	20.67	15.84	164.12	20.31
1917 ...	42.67	39.10	39.89	39.37	40.80	40.41	40.61	41.06	35.11	309.17	39.99
1918 ...	35.46	32.50	33.27	34.10	35.56	33.97	33.62	33.77	33.20	245.83	34.38
1919 ...	29.62	27.49	28.63	30.02	32.75	30.53	29.14	29.37	28.34	132.16	29.91
1920 ...	42.85	42.05	43.25	43.26	46.74	45.23	43.66	43.25	40.43	172.33	43.80
1921 ...	23.49	21.87	23.30	23.56	24.74	23.78	24.34	24.05	21.92	76.54	24.05
1922 ...	25.68	23.98	25.04	24.88	27.07	25.04	25.93	25.31	19.72	75.33	25.00

* Delivered. † Seaboard. ‡ F. o. b. furnace.

In April some pig iron salesmen, perhaps from force of habit, predicted that pig iron would shortly advance. The rejoinder was that it was not a case of pig iron going to advance but of pig iron having advanced. Deliveries were well taken but the fact is not much criterion of the future seeing that current deliveries average about $3.00 a ton below prices consumers would have to pay on fresh purchases, without any advance.

Production of pig iron appears ample for all purposes. There is the situation, novel since October, 1916, of there being heavy consumption of pig iron and steel and yet of coke not being scarce. Again the education salesmen have been giving buyers is reacting, since for several years the pig iron salesman has been directing the pig iron buyer's attention to coke.

PIG IRON PRODUCTION.

Output of coke and anthracite pig iron in April, a month of thirty days, was approximately 3,549,736 tons, being at a daily rate of 118,324 tons. Both the daily and monthly rate of production in April, therefore, established a new maximum record. On May 1st 310 blast furnaces were active, having an estimated capacity of 119,500 tons a day. This would indicate that production of coke and anthracite iron today is at the rate of 43,620,000 tons a year. Estimating charcoal production at the rate of 300,000 tons, however, production of all kinds of pig iron today is at the rate of a little under 44,000,000 tons a year. In April coke and anthracite iron were produced at the rate of 43,162,000 tons a year and including charcoal iron the rate of production was 43,462,000 tons a year.

In March, it will be recalled, the total production of coke and anthracite pig iron was 3,524,000 tons, a slight revision having been made of initial reports. March being a month of 31 days, the daily rate was 113,673 tons, which indicates production at the rate of 42,267,000 tons a year. Including charcoal iron the annual rate in March was approximately 42,500,000 tons.

Today the production of all kinds of pig iron is at a rate 10% in excess of the total production—39,434,000 tons—in the maximum production year, 1916. On May 1st, the 310 furnaces active compare with 296 furnaces active on April 1st, there having been a net increase of 14 during May.

Steel companies in April produced approximately, 2,704,360 tons of pig iron, being at a daily rate of 90,145 tons. In March the steel companies produced 2,716,371 tons which was at a daily rate of 87,625 tons. In April 1922 steel companies produced 1,629,982 tons, which was at a daily rate of 56,930 tons. In February this year steel companies produced 2,259,000 tons, being at a daily rate of 80,684 tons.

Merchant furnaces in April produced approximately 845,376 tons, which is at

UNFINISHED STEEL AND IRON BARS.

Averaged from daily quotations.

	Billets.	Sheet Bars.	Rods.	—Iron bars, deliv.—		
1921—	Pitts.	Pitts.	Pitts.	Phila.	Pitts.	Ch'go.
Jan.	45.00	47.00	57.00	2.85	3.06	2.68
Feb.	42.00	42.00	57.00	2.70	2.70	2.62
Mar.	39.00	39.00	47.00	2.56	2.60	2.60
April	37.00	38.50	47.50	2.35	2.45	2.45
May	37.00	39.00	48.00	2.35	2.35	2.38
June	35.00	36.00	48.00	2.20	2.25	2.25
July	32.00	33.00	43.00	2.07	2.20	1.94
Aug.	30.25	30.50	42.00	2.00	2.08	1.75
Sept.	30.00	30.00	40.50	1.97	2.00	1.75
Oct.	30.00	30.00	40.00	1.92	2.00	1.75
Nov.	29.00	30.00	40.00	1.90	1.97	1.70
Dec.	29.00	29.00	38.00	1.85	1.95	1.70
1922—						
Jan.	29.00	29.00	37.00	1.80	1.82	1.60
Feb.	28.50	29.00	36.00	1.75	1.78	1.60
Mar.	28.00	29.00	36.00	1.70	1.70	1.54
April	30.00	31.75	38.00	1.81	1.75	1.57
May	34.00	35.00	38.00	1.86	1.83	1.65
June	35.00	35.00	38.00	1.96	1.95	1.73
July	35.00	35.00	40.00	2.12	2.13	1.85
Aug.	37.00	37.00	43.00	2.16	2.15	1.95
Sept.	39.00	40.00	45.00	2.48	2.25	2.25
Oct.	39.50	39.50	45.00	2.43	2.40	2.50
Nov.	37.75	37.75	45.00	2.37	2.40	2.50
Dec.	36.50	36.50	45.00	2.32	2.35	2.50
1923—						
Jan.	37.50	37.50	48.50	2.36	2.38	2.45
Feb.	39.40	39.40	50.00	2.51	2.54	2.35
Mar.	44.00	44.00	50.00	2.70	2.70	2.50
April	46.30	45.60	50.00	2.82	2.80	2.60
Yearly averages.						
1913.	25.56	26.35	28.39	1.51	1.59	1.45
1914.	20.08	20.84	25.50	1.20	1.27	1.07
1915.	23.14	23.46	28.28	1.37	1.32	1.24
1916.	45.02	45.10	57.58	2.57	2.59	2.31
1917.	71.15	75.87	80.23	4.06	4.09	3.78
1918.	47.30	50.80	57.00	3.71	3.50	3.50
1919.	40.52	43.77	53.11	2.94	2.80	2.69
1920.	57.79	65.21	70.00	4.35	4.13	3.65
1921.	34.60	35.33	45.67	2.23	2.30	2.13
1922.	34.10	34.54	40.50	2.06	2.04	1.94

STEEL MAKING PIG IRON AVERAGES

Bessemer and basic pig iron averages compiled by Messrs. W. P. Snyder & Company from sales in the valley market of 1,000 tons and over.

	Bessemer.			Basic.		
	1923.	1922.	1921.	1923.	1922.	1921.
Jan.	27.50	19.50	32.00	25.58	18.19	30.00
Feb.	28.02	19.50	27.00	26.38	17.75	25.00
Mar.	30.26	19.39	26.20	30.02	18.00	24.50
April	31.00	20.54	25.00	31.00	19.30	22.50
May	.....	24.40	24.25	.....	24.91	21.87
June	.....	25.00	23.00	.....	25.00	20.70
July	.....	25.00	20.88	.....	24.56	18.80
Aug.	.....	28.67	20.00	.....	25.41	18.33
Sept.	.....	33.50	20.00	.....	32.93	19.25
Oct.	.....	33.50	20.00	.....	30.00	19.00
Nov.	.....	31.75	20.00	.....	27.60	19.00
Dec.	.....	28.10	20.00	.....	24.57	18.69
Year	.....	25.75	23.19	.....	24.02	21.47

All prices are f.o.b. valley furnace; freight, August 26, 1920, $1.96; August 1, 1922, $1.77.

STEEL CORPORATION BOOKINGS

Changes in unfilled tonnage with shipments and bookings estimated in percentage of capacity.

1921.	Shipments. %	Bookings. %	Difference. %	Difference. Tons
Nov.	52	49	— 3	— 362,287
Dec.	48	49	+ 1	+ 17,872
1922.				
Jan.	47	45	— 2	— 26,736
Feb.	57	49	— 8	— 100,609
Mar.	65	90	+25	+ 353,079
April ...	70	115	+45	+ 602,769
May	75	86	+11	+ 157,311
June	75	103	+28	+ 381,303
July	75	86	+11	+ 140,630
Aug.	67	79	+12	+ 173,944
Sept. ...	67	121	+54	+ 741,502
Oct.	76	91	+15	+ 210,680
Nov.	81	76	— 5	— 62,045
Dec.	80	73	— 7	— 94,539
1923.				
Jan.	86	97	+11	+ 165,073
Feb.	88	117	+29	+ 373,213
Mar.	89	97	+ 8	+ 119,343

Unfilled Orders.

At end of the quarter, last three figures omitted.

	First.	Second.	Third.	Fourth.
1910	5,402	4,257	3,158	2,674
1911	3,447	3,361	3,611	5,084
1912	5,304	5,807	6,551	7,932
1913	7,468	5,807	5,003	4,282
1914	4,653	4,032	3,787	3,836
1915	4,255	4,678	5,317	7,806
1916	9,331	9,640	9,522	11,547
1917	11,711	11,383	9,833	9,381
1918	9,056	8,918	8,297	7,379
1919	5,430	4,892	6,284	8,265
1920	9,892	10,978	10,374	8,148
1921	6,284	5,117	4,560	4,268
1922	4,494	5,635	6,691	6,746
1923	7,403	....	....	....

a daily rate of 28,179 tons. In March merchant furnaces operating at a daily rate of 25,965 tons produced 804,904 tons. In February output of merchant furnaces was 735,033 tons which was at a daily rate of 26,250 tons. These figures are based upon blast furnace returns to the Iron Age.

The following table shows the estimated annual rates of production of coke and anthracite iron in each month during the last three years.

Estimated annual rates.

	1923	1922	1921
Jan. ..	38,000,000	19,300,000	28,750,000
Feb. ..	39,000,000	21,300,000	25,550,000
Mar. ..	42,265,000	24,000,000	19,000,000
April .	43,162,000	25,250,000	14,600,000
May		27,250,000	14,450,000
June		28,900,000	13,000,000
July		28,500,000	10,200,000
Aug.		21,550,000	11,250,000
Sept.		24,950,000	13,000,000
Oct.		31,350,000	14,600,000
Nov.		34,900,000	17,200,000
Dec.		36,350,000	19,400,000

Yearly Totals

1922 ..	27,219,904		
1921 ..	16,688,126	1916 ..	39,434,797
1920 ..	36,925,987	1915 ..	29,916,213
1919 ..	31,015,364	1914 ..	23,332,244
1918 ..	39,054,644	1913 ..	30,966,152
1917 ..	38,621,216	1912 ..	29,726,937

STEEL PRODUCTION

April production steel ingots, as indicated by the American Iron and Steel Institute established a new high record in the history of the industry. The thirty companies which report to the Institute had a total output of 3,321,278 tons for the 25 active days of April indicating a daily output averaging 132,851 tons.

Heretofore, the Institute has been reporting ingot production on the basis of 87.75% made by the 30 companies in 1921. Today it is indicated that the 30 companies reporting produced only 84.13% of the total ingot production in 1922. It is therefore, not possible at the moment to give a fair comparison with March this year of the production made by all of the steel companies.

If the companies which did not report to the institute produced at the same rate as those which did report the total production of ingots in April was 3,947,792 tons, which is at the rate of 157,911 tons a day or 49,110,321 tons annually. This is a most remarkable showing and

indicates that the industry as a whole was producing steel at the rate of 93% of capacity.

As the Steel Corporation operating at an average rate of 94% of capacity, in April produced 1,715,500 tons the indication is that all of the independent steel companies produced 2,232,293 tons which is at the rate of 89,292 tons a day, and utilized 92½% of total capacity.

The thirty companies which reported to the Institute last month had an indicated daily output of 132,851 tons. The April output of these companies included 2,594,706 tons of open hearth, 722,719 of Bessemer and 3,853 of all other steel making a total 3,321,278 tons as given above.

The following table shows the monthly production reported by the 30 companies which make returns to the American Iron and Steel Institute, as compared with the corresponding months last year, also the estimated annual rate of production by all steel companies for each month during the years 1922 and 1921:

	Month's production as reported.		Estimate of total annual rate. (000 omitted)	
	1922.	1921.	1922.	1921.
Jan.	1,593,482	2,203,180	22,750	29,100
Feb.	1,745,022	1,749,477	26,850	25,400
Mar.	2,370,751	1,570,978	32,550	21,000
April	2,444,513	1,213,958	35,450	16,800
May	2,711,141	1,265,850	36,400	18,000
June	2,634,477	1,003,406	36,600	14,000
July	2,487,104	803,376	36,000	11,100
Aug.	2,214,582	1,138,071	30,000	15,800
Sept.	2,373,779	1,174,740	33,000	16,850
Oct.	2,872,415	1,616,810	40,000	23,000
Nov.	2,889,297	1,660,001	40,000	23,300
Dec.	2,779,890	1,427,093	39,500	19,750

1923.		1923.	
Jan.	3,251,694	Jan.	43,500
Feb.	2,919,017	Feb.	44,000
Mar.	3,402,007	Mar.	45,500
April	3,321,275	April	49,100

FINISHED STEEL PRICES

(Averaged from daily quotations, f.o.b. Pittsburgh).

	Shapes.	Plates.	Bars.	Pipe.	Wire.	Grooved Wire Nails.	Steel Skelp.	Sheets — Black	Galv.	Blue Annld.	Tin plate.	Comp. Fin. Steel.
Feb. 1921	2.30	2.35	2.13	57½	3.00	3.19	2.30	4.22	5.45	3.30	7.00	3.10
Mar.	2.10	2.10	2.00	57½	3.00	3.01	2.20	3.95	4.98	3.00	7.00	2.94
April ...	2.16	2.16	2.06	61	3.00	3.15	2.15	3.90	4.85	3.05	6.54	2.93
May	2.20	2.20	2.10	62½	3.00	3.25	2.20	4.00	5.00	3.10	6.25	2.93
June	2.15	2.06	2.08	62½	2.75	3.00	2.10	3.86	4.80	2.95	5.90	2.83
July	1.96	1.93	1.88	64	2.56	2.81	1.90	3.46	4.40	2.55	5.75	2.63
Aug.	1.84	1.84	1.75	64½	2.50	2.75	1.75	2.94	3.94	2.30	5.25	2.48
Sept. ...	1.68	1.67	1.67	66⅝	2.57	2.85	1.67	2.83	3.83	2.33	5.00	2.37
Oct.	1.60	1.59	1.60	68½	2.60	2.90	1.65	3.00	4.00	2.25	4.75	2.31
Nov.	1.60	1.51	1.56	68½	2.60	2.90	1.60	2.92	3.92	2.25	4.75	2.28
Dec.	1.57	1.50	1.53	69¾	2.44	2.70	1.52	3.00	4.00	2.25	4.72	2.23
Jan. 1922	1.50	1.50	1.50	71	2.25	2.50	1.50	3.00	4.00	2.25	4.75	2.16
Feb.	1.46	1.46	1.46	71	2.22	2.47	1.46	3.00	4.00	2.25	4.75	2.14
Mar.	1.41	1.39	1.41	71	2.25	2.40	1.40	3.00	4.00	2.25	4.61	2.09
April	1.50	1.49	1.50	71	2.25	2.40	1.50	3.12	4.12	2.37	4.66	2.16
May	1.52	1.52	1.55	71	2.25	2.40	1.55	3.15	4.15	2.40	4.72	2.18
June	1.60	1.60	1.60	71	2.25	2.40	1.60	3.15	4.15	2.40	4.75	2.22
July	1.62	1.62	1.62	71	2.25	2.40	1.62	3.15	4.15	2.40	4.75	2.23
Aug.	1.82	1.82	1.80	70⅛	2.26	2.41	1.80	3.27	4.27	2.46	4.75	2.36
Sept.	2.00	2.00	1.92	68	2.37	2.62	2.10	3.35	4.35	2.60	4.75	2.51
Oct.	2.00	2.08	2.00	66⅞	2.45	2.70	2.05	3.35	4.35	2.70	4.75	2.57
Nov.	2.00	2.00	2.00	66	2.45	2.70	2.00	3.35	4.35	2.55	4.75	2.57
Dec.	2.00	2.00	2.00	66	2.45	2.70	2.00	3.35	4.35	2.50	4.75	2.57
Jan. 1923	2.04	2.04	2.00	66	2.49	2.70	2.00	3.35	4.35	2.50	4.75	2.59
Feb.	2.16	2.18	2.16	64¼	2.61	2.80	2.16	3.40	4.49	2.55	4.78	2.72
Mar.	2.29	2.29	2.25	64⅞	2.70	2.82	2.30	3.63	5.00	2.95	5.09	2.83
April ...	2.46	2.46	2.36	63¼	2.70	2.94	2.40	3.97	5.20	3.20	5.50	2.99
Yearly averages:												
1913	1.42	1.41	1.38	79¾	1.50	1.70	1.39	2.20	3.28	1.68	3.56	1.72
1914	1.16	1.14	1.15	80	1.37	1.57	1.17	1.89	2.87	1.38	3.35	1.52
1915	1.30	1.29	1.31	79¼	1.48	1.66	1.27	1.93	3.85	1.49	3.19	1.63
1916	2.50	2.82	2.48	70⅞	2.45	2.53	2.34	3.06	4.85	2.99	5.34	2.80
1917	3.66	5.21	3.49	52⅛	3.48	3.58	3.95	6.29	8.21	6.15	7.85	4.46
1918	2.99	3.24	2.89	51⅛	3.25	3.50	2.89	4.98	6.24	4.23	7.72	3.79
1919	2.53	2.71	2.43	56¾	3.06	3.31	2.51	4.43	5.78	3.63	7.08	3.32
1920	2.99	3.20	2.99	55⅝	3.40	3.67	3.00	5.85	7.39	5.06	7.29	3.63
1921	1.07	1.96	1.89	63¾	2.77	2.98	1.96	3.54	4.57	2.74	5.83	2.69
1922	1.70	1.71	1.70	69½	2.31	2.51	1.72	3.19	4.19	2.43	4.73	2.31

SEMIFINISHED STEEL

Steel ingots were produced in March at an average rate of about 45½ million tons a year. The production of pig iron is now 5% greater. A corresponding increase in steel production would make a 48 million ton rate, which would be considered phenomenal, being 15 or 20% above the rate in 1920. However, pig iron may be accumulating, or the mills may be using less scrap. The continued softening in the scrap market since about the middle of March would support this view.

At the beginning of April mills had covered their regular sheet bar customers for the quarter in out a limited way and had nothing to offer in the open market. They spoke of $47.50 or $50.00 as prices a chance buyer would likely have to pay. At the end of the month there were hardly any offerings, but mills were talking $45.00 as the price at which they would sell if they could spare steel.

BARS, SHAPES AND PLATES

Late in April bars advanced from 2.35c to 2.40c and shapes and plates from 2.45c to 2.50c. Deliveries became easier, and frequently possible, on new orders, not much later than July 1st. Delivery premiums tended to shorten and the volume of premium business decreased. Mills established an extra of $3.00 a ton on screw stock, the principal raw material of the cold finished bar makers, which will now cost 2.55c. The price of cold finished bars was advanced from 3.00c to 3.25c at the end of April.

Instances continue to be cited of construction projects being postponed on account of "cost". One should avoid jumping to the conclusion that the item

IMPORTANT STEEL PRICE CHANGES

At the end of 1920 prices of independent steel producers had declined to Industrial Board schedule of Mar. 21, 1919, to which U. S. Steel Corporation had meanwhile adhered. These prices are given under date of Jan. 1, 1921, subsequent changes being in open market. Only the more important changes are listed.

BARS.

Jan. 1, 1921	2.35	Mar. 29	1.50
Feb. 11	2.00	May 17	1.60
April 13	2.10	July 26	1.70
June 24	2.00	Aug. 9	1.80
July 5	1.90	Aug. 25	1.90
July 26	1.75	Sept. 27,	2.00
Sept. 9, 1921	1.65	Jan. 31, 1923	2.10
Sept. 27	1.60	Feb. 16,	2.20
Nov. 9	1.55	Feb. 23,	2.25
Dec. 19	1.50	April 2,	2.35
Feb. 18, 1922	1.40	April 27	2.40

PLATES

Jan. 1, 1921	2.65	Nov. 9	1.50
Feb. 10	2.40	Feb. 18, 1922	1.40
Feb. 17	2.25	April 5	1.50
Feb. 23	2.10	May 25	1.60
April 13	2.20	July 26	1.70
June 10	2.00	Aug. 9	1.80
July 15	1.90	Aug. 25	2.00
July 26	1.85	Jan. 19, 1923	2.10
Aug. 25, 1921	1.80	Feb. 9,	2.20
Sept. 2	1.75	Feb. 23,	2.25
Sept. 9	1.65	Mar. 21,	2.35
Sept. 27	1.60	April 2,	2.45
Oct. 27	1.55	April 27	2.50

SHAPES

Jan. 1, 1921	2.45	Dec. 21	1.50
Feb. 11	2.25	Feb. 18, 1922	1.40
Feb. 17	2.20	Mar. 9	1.50
Feb. 28	2.10	May 25	1.60
April 13	2.20	July 26	1.70
June 24	2.00	Aug. 9	1.80
July 22	1.90	Aug. 25	2.00
July 26	1.85	Jan. 19, 1923	2.10
Aug. 25, 1921	1.80	Feb. 16,	2.20
Sept. 2	1.75	Feb. 23,	2.25
Sept. 9	1.70	Mar. 21,	2.35
Sept. 26	1.65	April 2,	2.45
Sept. 27	1.60	April 27	2.50

STEEL PIPE

Jan. 1, 1921	57½%	Sept. 16	68½%
Mar. 24	58½%	Dec. 16	71%
April 7	59½%	Aug. 23, 1922	68%
April 13	62½%	Oct. 19, 1923	66%
July 9, 1921	64½%	Feb. 3, 1923	64%
		April 19,	62%

WIRE NAILS

Jan. 1, 1921	3.25	Dec. 9	2.75
Feb. 17	3.10	Dec. 21	2.50
Mar. 4	3.00	Feb. 21, 1922	2.40
April 13	3.25	Aug. 30	2.60
June 1	3.00	Sept. 27,	2.70
July 9, 1921	2.75	Feb. 1, 1923	2.80
Sept. 12	2.90	Mar. 26,	2.90
		April 20,	3.00

BLACK SHEETS

Jan. 1, 1921	4.35	Sept. 22	3.00
Feb. 11	4.15	Nov. 1	2.90
Mar. 8	4.00	Nov. 25	3.00
Mar. 17	3.85	April 7, 1922	3.15
April 13	4.00	Aug. 14	3.35
July 5	3.50	Feb. 23, 1923	3.60
July 26, 1921	3.25	Mar. 27,	3.75
Aug. 1	3.00	April 3,	4.00
Aug. 25	2.75	April 26,	3.85

TIN PLATE

Jan. 1, 1921	7.00	Mar. 21, 1922	4.60
April 13,	6.25	April 5	4.65
June 7	6.00	April 24	4.70
June 14	5.75	May 17	4.75
Aug. 1, 1921	5.25	Feb. 26, 1923	5.00
Sept. 15	5.00	Mar. 23,	3.00
Sept. 19	4.75	Mar. 27,	5.50

BLUE ANNEALED SHEETS

Jan. 1, 1921	3.55	Sept. 22	2.50
Feb. 11	3.35	Nov. 1	2.25
Feb. 16	3.20	April 7, 1922	2.40
Mar. 8	3.00	Aug. 14	2.50
April 13	3.10	Sept. 20,	2.60
June 10	2.90	Nov. 23,	2.50
July 6, 1921	2.65	Feb. 23, 1923	2.75
Aug. 2	2.40	Mar. 23,	3.00
Aug. 16	2.25	April 3,	3.25
		April 26,	3.00

GALVANIZED SHEETS

Jan. 1, 1921	5.70	Aug. 25	3.75
Feb. 11	5.55	Sept. 22	4.00
Feb. 16	5.35	Nov. 1	3.90
Feb. 24	5.25	Nov. 25	4.00
Mar. 8	5.10	April 7, 1922	4.15
Mar. 17	5.00	Aug. 14,	4.35
June 22	4.75	Feb. 23, 1923	4.75
July 5, 1921	4.50	Mar. 20,	5.00
July 22	4.25	April 3,	5.25
Aug. 2	4.00	April 26,	5.00

involved is the cost of steel. Investigation might show that what made the cost objectionable was the expense of bidding workmen away from other employment to do this work in place of other work arranged long ago. Such a performance would not increase the consumption of steel.

TUBULAR GOODS

Under date of April 19th the National Tube Company issued new lists, the basing discount on merchant steel pipe being reduced from 64% to 62%. This did not indicate increased strength in the steel situation as a whole in April, as the advance was really a belated one, fully justified before the end of March.

On the same date the American Steel & Wire Company advanced its nail price from $2.90 to $3.00, a price previously quoted and obtained by independents.

SHEETS AND TIN PLATES

April 26th the American Sheet & Tin Plate Company opened third quarter order books, an innovation as to tin plate, which heretofore has been sold to manufacturing consumers for six months. Prices were 3.00c for blue annealed sheets, 3.85c for black, 5.00c for galvanized, 5.35c for automobile sheets and $5.50 for tin plate, against prices named February 26th of 2.65c, 3.50c, 4.60c, 5.00c and $4.95 respectively and prices previously maintained of 2.50c, 3.35c, 4.35c, 4.70c and $4.75. These last named prices were those at which nearly all of the sales through June had been made. Independent producers who usually follow the Steel Corporation in the matter of prices and sales did so. Others pursue a policy of keeping their order books relatively clear in order to profit by such delivery premiums as may be obtainable. The demand for sheets at delivery premiums has been declining. In tin plate there are strong indications that there will not be enough to go around. The leading interest on opening its order books had requisitions on file from regular customers sufficient to take up all the third quarter tonnage.

FABRICATED STEEL

April orders for fabricated structural steel are indicated to have been about 50% less than the contracts booked in March. In the second half of April a number of building projects were set

Allegheny Steel
and
Allegheny Iron

SHEETS BOILER TUBES
PLATES WASHERS
STEEL CASTINGS
Hot and Cold Pressed Stampings

ALLEGHENY STEEL COMPANY
PITTSBURGH, PA.

SOLICITING AGENTS
501 Fifth Ave., New York 1436 Dime Bank Bldg., Detroit, Mich.
Steel Sales Corporation, 129 South Jefferson Street, Chicago.

aside largely because of the exhorbitant demands of labor but also because of the higher costs of building material, including steel. Some contractors held up orders under negotiation because of the difficulties in obtaining deliveries of steel until late in the year. Today, however, there is an easing condition at the fabricating shops as well as at the structural mills because of larger steel output. Some of the smaller fabricators can make deliveries on new contracts in a few weeks where specifications are not too complicated. The largest fabricators have found more difficulty in obtaining plain material shipments from the mills than have the smaller shops. The American Bridge Company, the fabricating subsidiary of the Steel Corporation, was unable to increase output in April over 70% of capacity. This applies especially to eastern shops but similar conditions prevail in the interior. This inability to increase output of the shops, however, is as much due to the difficulty in obtaining adequate and competent labor as to the recently restricted shipments of plain material by Pittsburgh mills.

Verbal awards indicate that the April bookings of fabricated steel were approximately 100,000 tons. This is based on specific awards of 75,000 to 80,000 tons and indications of 20,000 tons more having placed. In April reports of sales by fabricating shops to Bureau of the Census, amounted to 210,716 tons, upon which it is estimated that the entire industry had placed orders for 237,500 tons. These figures include many small shops which do not report from week to week, including ship building companies which are only occasionally in the market for building contracts. March contracts were the heaviest ever reported for a single month in the history of the industry, orders being equivalent to about 95% of shop capacity, capacity being estimated at about 250,000 tons a month.

It is significant that oil companies in April placed fewer steel contracts for storage tanks than at any time in several months although one company today is negotiating for 5,000 tons tank plate. The railroads, however, placed more orders for bridges and viaducts and one large inquiry for 22,000 tons for the Newark Bay bridge of the Central R. R. of New Jersey is now before the fabricators. This is for the first unit. The completed structure will require in the neighborhood of 50,000 tons of steel.

Usually at this time of the year there is a slackening of fabricated steel work but this year the falling off in orders has been unusually abrupt. Many structural contracts were placed in the first quarter of 1923 because of the desire to obtain a place on mill and shop books that would insure shipments this Summer. Under ordinary conditions not a few of these contracts would have been postponed until later in the season. Under the circumstances an unusually large amount of business was crowded into the first quarter of the year.

Recently not a few substantial orders for fabricated steel for barges have been placed with shops in the central west. Some of these contracts have not yet been reported but allowance was made in estimating the full tonnage placed in April. Inquiries for structural work are still before the fabricators calling for between 75,000 and 100,000 tons against recent inquiries for 150,000 to 200,000 tons.

For comparative purposes, the figures are also prorated to obtain an estimated total for the United States on a capacity of 250,000 tons per month.

1922	Actual Tonnage booked	per cent. of capacity	Estimated Total bookings
April ..	197,796	89	222,500
May ...	181,503	81	202,500
June ..	162,876	73	182,500
July ...	153,903	69	172,500
Aug. ...	152,253	68	170,000
Sept. ..	143,566	64	160,000
Oct. ...	128,315	58	145,000
Nov. ...	108,593	49	122,500
Dec. ...	130,082	58	145,000
1923			
Jan. ...	168,227*	75	197,500
Feb. ...	178,822†	80	200,000
Mar. ...	210,716‡	95	237,500

*Reported by 166 firms with a capacity of 224,445 tons.

† Reported by 166 firms with a capacity of 224,755 tons.

‡ Reported by 153 firms with a capacity of 7,220,790 tons.

Percentage of fabricated orders to total shop capacity.

	1922	1921	1920	1919	1918	1917
Jan.	40%	18%	75%	12%	53%	61½
Feb.	43½	14	95	12½	55½	59
Mar.	77	29	83½	17½	47	68
April	89	31	68	24½	64	61

	1922	1921	1920	1919	1918	1917
May	81	28	61½	49	60	56½
June	73	37	50	65	56	47½
July	69	33½	50	74	116½	41½
Aug.	68	33	40	78½	57	38
Sept.	64	48	43	78½	60	29
Oct.	58	54	25½	77½	43	61½
Nov.	49	55	27½	69	27	77
Dec.	58	40	26	85	29	114
Av.	64.2	35	53¾	53½	55½	59½

1923—

January	75
February	80
March	95

THE FUTURE

It requires many things to make up a market, and all factors should be known if a forecast is to be made.

Known things are as follows: Steel prices are very firm. Steel mills are very comfortably sold up. Production is very heavy. Buyers are taking deliveries very well. Consumption is very heavy and is certain to continue at the present rate for many months and is likely to continue at close to the present rate into the new year.

The unknown things is the precise relation between the very heavy production and the very heavy consumption. In that relation there are possibilities. Merely to illustrate, 1912 and 1913 were the biggest tonnage years before the war. Population is 10% greater now. A consumption 30% greater certainly should be considered very heavy. Deducting allowance for exports, steel production is 60% greater.

FERRO-ALLOYS

British producers of ferromanganese advanced prices during April $10 a ton. The first advance which was made April 13th was $2.50 a ton for shipment after July. The advance was preceded by some increase in buying by American consumers at $115 a ton duty paid, c.i.f. Atlantic ports. It is estimated that sales amounted to 3,000 tons for shipment during the second half and small sales were made at slightly higher prices both by domestic and foreign producers.

The second advance of $2.50 a ton was announced April 19th, bringing the price to $120 c.i.f. Atlantic ports duty paid. At this time the higher price was attributed to the advance in fuel and the higher price prevailing for manganese ore in England. The third advance, which was $5.00 a ton, was announced April 25th, when local agents of English producers were instructed to advance asking price to $125 Atlantic ports duty paid. Since that time there has been very little buying but a few small sales were made at $125.

Reports that British producers of ferromanganese had sold their output for the second half of this year were not credited; in fact, it is understood that fully 30,000 tons or more of British alloy is still available for shipment over the second half of the year. Most of the large consumers have their requirements covered for the entire year. It is understood, however, that some of the smaller buyers, who cover requirements only for thirty or ninety days at a time, are still likely to come into the market. Toward the close of the month one importer reported sales aggregating 100 tons at $125.00 duty paid.

It is interesting to note that the output of domestic ferromanganese in March was in excess of 20,700 gross tons, making the total output during the first quarter of the year a little less than 61,500 tons, or at an average rate of 20,500 tons a month. If this rate is kept up over the remainder of the year total output would be very close to 246,000 tons. It is estimated that steel makers in this country require about 17 pounds of ferromanganese for the production of a ton steel. Today production of ingots is at the rate of 45,000,000 tons a year. It is not expected that this rate will be maintained throughout 1923 but if so steel makers would require about 340,000 tons of ferromanganese. Deducting domestic production of 245,000 tons, would leave the necessity of importing 95,000 tons which is at the rate of 7,900 tons a month. In 1922 total importations were 94,592 tons or at the rate of 7,882 tons a month. Government reports of importations for this year are not yet available but it is expected that importations will be fully equal to what they were last year.

It is quite evident then that the supply of ferromanganese for this year will be equal to the needs of the steel producers, even if production of steel should continue at the rate of 45,000,000 a year. Recently British makers experienced difficulty in obtaining both ore and fuel but the outlook has somewhat improved in the last ten days.

Recent British official reports show that in January 12,529 tons and in February 9,361 tons of ferro alloys were shipped to the United States. Practically all of the ferro alloys sent by Great Britain to this country is made up of ferromanganese. In the first two months of last year, importations of ferromanganese were only 3,485 tons. A little spiegeleisen is included in the importations in the first two months of this year but the bulk of the average monthly arrivals—10,945 tons—in January and February was ferromanganese.

The largest domestic producer of spiegeleisen has been practically out of the market for a month or more but consumers, especially the larger ones, have covered their requirements for the first half of the year at least. The labor situation is unfavorable for producers and is held responsible for the present indisposition to seek orders for the second half of the year. The last quotations for domestic spiegeleisen, 19% to 21%, was $40.00 to $45.00 at the furnace and this is expected to be close to the price which will be developed for shipment in the second half but small lots of foreign spiegeleisen have sold as high as $50.00 duty paid Atlantic ports.

Specifications against contracts for 50% ferrosilicon have continued heavy but new buying throughout April was light. On the other hand offerings were also small and the minimum price that would be accepted for small lots is $95.00 a ton delivered.

IRON AND STEEL SCRAP PRICES

	Heavy melting steel.			No. 1 cast.	
	Pittsb.,	Phila.,	Chic.	Pitts.	Chic.*
Jan., '22	14.67	11.45	11.70	16.60	12.75
Feb. ...	14.25	11.50	11.75	16.25	12.80
Mar. ...	25.35	11.75	12.50	16.25	13.50
April ..	16.60	14.25	13.80	17.25	14.70
May ...	17.25	14.70	14.95	18.25	15.80
June ...	17.25	14.50	14.80	18.60	15.50
July ...	16.85	14.40	15.40	19.25	16.00
Aug. ...	17.45	14.75	16.00	19.35	17.25
Sept. ..	20.00	17.00	17.50	21.75	18.60
Oct. ...	21.00	18.35	18.65	24.00	19.60
Nov. ...	20.50	16.65	17.60	23.20	18.50
Dec. ...	20.40	16.70	17.50	22.75	18.35
Year ..	17.63	14.67	15.18	19.46	16.11
Jan., '23	22.00	20.85	19.30	23.50	20.40
Feb. ...	23.35	21.10	20.00	24.15	22.50
Mar. ...	25.30	35.25	23.45	26.25	24.75
April ..	25.00	24.00	22.25	27.15	23.20

* Per net ton.

SCRAP

The iron and steel scrap market in all districts continued during April the softening that had begun in the latter part of March. One factor was the advent of Spring as much scrap had been snowbound in New England. Another factor was the free operation of blast furnaces, making a good pig iron supply. Probably a third was that the scrap market usually anticipates turns in the finished steel situation sometimes by quite a while. At about March 20th heavy melting steel scrap sold at $27.00 delivered at one point in the Pittsburgh district and at $27.50 at another point in the district. At the end of April it sold at $24.00 delivered at one of these points.

COAL

There is one encouraging note that stands out in a coal business that is otherwise lifeless and colorless. That is that it is the announced intention of several of the country's largest railroads to "buy coal early" for storage purposes in anticipation of next Winter's needs and also to relieve equipment for the heavy freight traffic which is expected for the Fall and Winter months. Word came from the west on May 3rd that the Chicago, Burlington & Quincy Railroad had appropriated $1,500,000 for the purchase and storage of coal along its lines, and it is understood that a number of other roads have set aside sums to be expended in a like manner between now and July.

At a recent meeting of the American Railway Association and the Association of Railway Executives one of seven constructive measures adopted was the assertion that they would exert every effort to store their own requirements of coal by September 1st. Coal loadings at present are unusually heavy, and investigation has shown that much of the increased business has been for account of the railroads. Bituminous coal loadings are at present about 40,000 cars a week ahead of this time last year (during the strike period) and of this number, about 30,000 cars are transporting commercial coal. The other 10,000 additional cars are credited to railroad business, and it is estimated that about half this number is needed for immediate consumption because of increased traffic, while the other half goes into storage.

Present figures indicate that the railroads are now storing approximately 250,000 tons per week, and that by September 1st they will have stored 6,000,000 tons, or approximately 25% of their Winter's requirements. This will mean an investment of about $27,000,000 tied up in inactive supplies, and coal producers and wholesalers look upon this as an excellent example to industrial consumers who persistently refuse to buy when transportation facilities are adequate and prices at minumum. Factors in the coal trade, and government officials as well, have urged consistently that industrial plants store their coal early wherever practicable, but such advice has too often been ignored, and bitter castigations on the coal producers are the result of the wild scramble for coal that occurs during the Winter months when transportation facilities are impeded and prices are shooting upward because operators are trying to recoup some of their losses incurred by Spring and Summer idleness.

Just now, the movement of commercial coal is decidedly slow outside of the volume that is going forward on contracts that were made effective for the current year beginning on April 1st. If it were not for railroad business and current contract consumers, the country would not by any means be making steady production records of better than 10,000,000 net tons of bituminous coal weekly. Since the first of January, however, that has been the approximate weekly production rate, and if it should be maintained throughout 1923, this year's total production would be considerably more than 100,000,000 net tons greater than production in 1922 and 1921.

Up to May 1st, the almost total lack of spot demand which had prevailed since around the middle of February had made spot prices fall almost to an "irreducible minimum" and there was then no indication that industrial consumers would soon be aroused to a point where the coal markets could be considered active. Railroad and contract shipments have been the salvation of the operators who have been able to keep their mines going in the face of drastic declines in spot prices. Another of the brighter features, however, is the fact the navigation on the Great Lakes is about ready to open—the ice having held on unusually long this year—and that will mean that there will be substantial shipments of western Pennsylvania; middle western, and West Virginia smokeless coals, to the lake docks. The domestic coals are in unusually heavy demand for this time of the year, and anthracite mines are working to capacity.

Speeding up production in central Pennsylvania in order to offset the efforts of union agitators—coupled with decided improvement in car supply—has resulted in over-production there, and prices have taken sharp drops. In West Virginia, on the other hand, car supply is poor, although operators there have announced prices of $4.00 a net ton at the mines for May on smokeless coals for contract shipment. In the middle Atlantic and New England States, industrial consumers will not consider spot offerings, even of coals of the best grades (pool 1) at $3.50 to $4.00 net ton at the mines, with pool 71 at $3.25 to $3.50. Coals of pool 9 quality are offered at $2.50 net ton and under, and classified pool 9 is from $2.50 to $2.75. This brings pool 10 into line at about $2.00 to $2.25, and pool 11 at $1.75 to $2.00. As a consequence, many operators are shutting down their mines, and others are shipping their surplus to the New York piers where prices on the good grades range from $5.00 to $5.75 gross ton at the piers. Distress lots of undesirable coals are sold as low as $4.00.

CONNELLSVILLE COKE

Connellsville furnace coke for spot shipment reached its high point about March 20th, when it was firm at $7.50. Before the middle of April it was easily available at $6.00 and the market then ran at about that figure. Contracts for the quarter averaged about $7.10, only one being at under $7.00. The contract deliveries were so good that there were few buyers to take up excess production, hence the necessity for curtailment. Early in April some operators set their minds on obtaining $7.50 for third quarter, while late in the month they were thinking of $7.00 as an objective and it was reported that several furnacemen had been quietly offered third quarter coke at $6.00. For obvious reasons growing out of the pig iron situation furnacemen are not interested in quotations at all.

EXPORTS OF IRON AND STEEL PRODUCTS FROM THE U. S.

Value of tonnage and non-tonnage.

	*1923	*1922	1921
Feb.	14,865,590	12,950,603	101,205,061
Mar.	14,543,155	18,836,718	67,870,739
April	.....	17,559,081	49,609,605
May	.....	17,749,475	41,365,886
June	.....	18,649,816	39,975,035
July	.....	14,611,858	27,639,787
Aug.	.....	13,963,749	27,647,816
Sept.	.....	14,380,851	26,740,228
Oct.	.....	14,626,411	29,706,437
Nov.	.....	14,249,434	28,543,142
Dec.	.....	16,668,116	29,502,448

* Excluding machinery.

1922..	$ 188,841,433	1916..	$871,372,322
1921..	607,427,146	1915..	390,897,123
1920..	1,112,904,802	1914..	199,861,684
1919..	968,575,142	1913..	293,934,160
1918..	1,035,291,736	1912..	289,128,420
1917..	1,240,984,979	1911..	249,656,411

Tonnage Lines.

(Gross tons.)

	1923	1922	1921	1920
Jan.	123,190	160,920	547,394	333,601
Feb.	133,902	133,975	393,328	308,185
Mar.	.....	208,843	230,635	417,216
April	.....	198,830	162,592	395,120
May	.....	230,062	104,072	420,359
June	.....	212,295	119,081	402,707
July	.....	157,169	86,523	458,866
Aug.	.....	145,640	75,827	431,484
Sept.	.....	129,475	95,169	409,200
Oct.	.....	132,924	106,582	452,015
Nov.	.....	127,782	122,290	434,297
Dec.	.....	150,170	134,415	498,765

Yearly totals.

1922	1,986,297	1916	6,105,881
1921	2,213,042	1915	3,532,606
1920	4,961,851	1914	1,549,554
1919	4,239,837	1913	2,745,535
1918	5,338,037	1912	2,947,596
1917	6,441,760	1911	2,187,724

IMPORTS OF IRON ORE INTO THE UNITED STATES.

	1922	1921	1920	1919
Jan.	19,433	82,424	88,881	33,251
Feb.	10,016	47,466	100,105	28,039
Mar.	12,013	26,483	108,643	54,992
April	2,710	35,645	88,670	24,195
May	29,707	58,704	103,325	28,164
June	133,817	8,424	104,364	30,605
July	166,711	7,040	28,846	23,347
Aug.	160,173	24,570	174,169	32,117
Sept.	127,838	4,954	73,675	48,478
Oct.	*123,207	5,838	141,026	30,386
Nov.	165,648	12,065	139,854	89,933
Dec.	167,221	2,155	117,898	52,954

Yearly totals.

1922	1,140,463	1916	1,325,736
1921	315,768	1915	1,341,281
1920	1,273,456	1914	1,350,588
1919	476,461	1913	2,594,770
1918	787,468	1912	2,104,576
1917	971,663	1911	1,811,732

* Sept. 22 to Oct. 31.

BITUMINOUS COAL PRODUCTION

(Net tons of 2,000 lbs.)

	1923.	1922.	1921.
Jan. ...	50,178,000	37,604,000	40,270,000
Feb. ...	42,160,000	40,980,000	30,851,000
Mar. ...	46,802,000	50,167,000	30,392,000
April ..	42,000,000	15,700,000	27,553,000
May ...	.....	20,290,000	33,330,000
June ...	.....	22,309,000	33,896,000
July ...	.....	17,003,000	30,385,000
Aug. ...	.....	27,358,000	34,538,000
Sept. ..	.....	39,510,000	35,127,000
Oct. ...	.....	45,141,000	43,733,000
Nov. ...	.....	45,303,000	36,020,000
Dec. ...	.....	44,500,000	30,975,000
Total	.....	405,944,000	407,000,000

CONNELLSVILLE COKE.

Spot for prompt, per net ton f.o.b. ovens.

	— Furnace —			— Foundry —		
	1923.	1922.	1921.	1923.	1922.	1921
Jan.	8.30	2.85	5.10	9.25	4.00	6.75
Feb.	7.30	3.10	4.80	8.50	4.15	6.15
Mar.	7.35	3.38	4.43	8.60	4.50	5.63
Apr.	6.25	4.44	3.60	7.80	5.21	5.15
May	....	6.50	3.40	....	6.75	5.10
June	....	7.50	3.12	....	7.85	4.67
July	....	11.35	2.95	....	11.70	4.20
Aug.	....	13.35	2.95	....	15.00	4.20
Sept.	....	11.50	3.26	....	13.25	4.34
Oct.	....	9.70	3.35	....	11.90	4.40
Nov.	....	7.35	3.15	....	8.70	4.17
Dec.	....	7.75	2.90	....	8.15	4.00
Av.	....	7.40	3.58	....	8.43	4.90

BRITISH IRON AND STEEL OUTPUT.

Pig Iron—(Gross tons).

	1923	1922	1921
Jan.	567,900	288,000	642,100
Feb.	543,400	300,100	463,600
March ...	663,600	389,800	386,000
April	.....	394,300	60,300
May	.....	407,900	13,600
June	.....	369,200	800
July	.....	399,100	10,200
Aug.	.....	411,700	94,200
Sept.	.....	430,300	158,300
Oct.	.....	481,500	235,500
Nov.	.....	493,900	271,800
Dec.	.....	533,700	275,000
Total ...	.....	4,899,500	2,611,400

Steel Ingots and Castings.

	1923	1922	1921
Jan.	624,300	327,500	493,400
Feb.	707,100	418,800	483,500
March ...	802,500	549,400	359,100
April	.....	404,200	70,600
May	.....	462,300	5,700
June	.....	400,200	2,700
July	.....	473,100	117,200
Aug.	.....	520,800	434,100
Sept.	.....	555,900	429,300
Oct.	.....	565,200	405,400
Nov.	.....	600,800	442,800
Dec.	.....	546,100	381,000
Total ...	.....	5,831,900	3,624,800

COPPER IN APRIL

Strength of copper, which was the most prominent feature at the beginning of March, was replaced by pronounced weakness at the beginning of May. Throughout April there was a heavy and sagging market although producers were very reluctant to follow the market downward. As copper was pressed for sale by second hands, however, the competition was met by custom smelters and the latter were followed by smaller and then by the larger producers, until at the end of April electrolytic was being offered by the largest producers at 16.62½c delivered against 17.37½c delivered at the beginning of April. Thus in the last 30 days there was a drop of ¾c a pound in producers' prices.

In the outside market, that is in the interior, as well as on the Atlantic seaboard, the pressure to sell by second hands for future as well as for early delivery, brought about a decline of ⅞c to 1c a pound. It is surprising how little copper consumers have taken from second hands notwithstanding the heavy concessions made. It is estimated that between 15,000,000 to 20,000,000 pounds of copper were obtained from second hands and small producers during the month. About the middle of April, American Brass Company, largest individual consumer, is credited with having purchased about 5,000,000 pounds at 16.87½c delivered, which gave a temporary check to the downward movement but later this interest refused to pay 16.75c delivered in the Connecticut Valley and since that time the market has receded further.

It was again surprising how sales of finished copper and brass were maintained during the first half of April but now that prices of unwrought copper have dropped ¾c to 1.00c a pound and some wire drawers have reduced prices of wire and rods ¼c a pound with a further downward tendency, there will no doubt be a further check in buying of finished products until prices have been readjusted. The large manufacturers of brass and copper products, however, being well supplied with orders continued to operate at as close to full capacity as possible throughout April. Output of most departments was limited only by the amount of labor available. It is pointed out also by manufacturers that higher rates paid to labor have increased the cost of production and some of the unwrought copper used throughout the month was purchased at higher prices than now prevail. On the other hand much of the copper which was delivered in the last two months was purchased in the January-February buying movement when prices advanced from 14.00c to 17.00c per pound.

In January, February and early March home manufacturers purchased unusually heavy amounts of copper for delivery over the first half of the year. Large shipments against these contracts have been made in the last two months but manufacturers still have sufficient copper purchased on contracts to meet their requirements for the next sixty days is not longer. Some contracts for finished material were covered for delivery through June and July and in exceptional instances for August and September shipment. It was these heavy deliveries against contracts undoubtedly which kept consumers very conservative in making new purchases throughout April, even at substantial concessions in prices.

It is interesting to note that both producers and consumers believe that the present recession in prices will be temporary only and that renewed buying of unwrought copper in the next thirty to sixty days or so will bring about

COPPER PRICES IN APRIL

	— New York —			— London —	
Day	Lake.	Electro.	Cast.	Stand. £ s. d.	Electro. £ s. d.
2	17.37½	17.12½	16.87½	Holiday	Holiday
3	17.37½	17.12½	16.87½	75 10 0	83 0 0
4	17.37½	17.12½	16.87½	74 17 6	83 0 0
5	17.37½	17.12½	16.87½	74 15 0	82 15 0
6	17.37½	17.06¼	16.87½	74 5 0	82 10 0
9	17.37½	17.00	16.75	73 5 0	82 0 0
10	17.37½	16.87½	16.75	73 7 6	82 0 0
11	17.37½	16.87½	16.75	73 10 0	81 15 0
12	17.25	16.75	16.62½	73 0 0	81 0 0
13	17.25	16.75	16.50	73 2 6	81 0 0
16	17.25	16.75	16.50	73 7 6	81 0 0
17	17.25	16.75	16.50	73 5 0	81 0 0
18	17.00	16.87½	16.62½	73 10 0	81 5 0
19	17.00	16.80	16.62½	73 10 0	81 5 0
20	17.00	16.75	16.62½	73 0 0	81 0 0
23	17.00	16.75	16.56¼	72 17 6	81 0 0
24	16.87½	16.68¾	16.50	72 5 0	80 17 6
25	16.81¼	16.56¼	16.37½	72 5 0	80 10 0
26	16.75	16.50	16.25	72 0 0	80 5 0
27	16.75	16.50	16.25	71 5 0	80 0 0
30	16.62½	16.25	16.12½	70 10 0	79 10 0
High ...	17.37½	17.12½	16.87½	75 10 0	83 0 0
Low	16.62½	16.25	16.12½	70 10 0	79 10
Aver.	17.13	16.81	16.60	73 3 5	81 6 7

a recovery although such optimistic expectations of 18.00c and 20.00c copper are entertained only by the credulous and speculators. It is significant however, that producers have followed the market downward both here and abroad but their sales have been small because of unwilling home and foreign buyers.

The statistical position of copper is not so strong as some trade reports would indicate. Producers claim that surplus stocks in the first quarter were reduced 70,000,000 pounds but it is of more than passing interest to note that the heavy foreign shipments reported by producers through the Copper Export Association were to an important extent due to exports from South America as well as from the United States, and considerable of the refined copper made in South America was not or is not, being included in trade estimates of 185,000,000 pounds produced a month.

As previously pointed out exports from the United States in the first quarter of this year—that is of unwrought copper only—were only 170,000,000 pounds, with March estimated at 60,000,000 pounds. In January exports of unwrought copper from the United States, according to Government returns, were 65,863,000 pounds, whereas producers returns, including exports from South America were close to 85,000,000 pounds. In February the exports of unwrought copper from the United States alone, according to the Government, were a little over 43,000,000 pounds. In April, however, exports from the port of New York alone were over 40,000,000 pounds and the probability is that total exports of unwrought copper for the full month of April were close to 70,000,000 pounds.

April deliveries to domestic consumers are understood to have averaged 130,000,000 pounds a month in the first quarter, but if 70,000,000 pounds were exported in April, April deliveries to home consumers probably were less than 100,000,000 pounds, but even assuming that 130,000,000 pounds were shipped to home melters in April, the same as the average in the first three months, the total deliveries to domestic and foreign consumers would be 760,000,000 pounds. Estimating the refined production in the United States at the rate of 190,000,000 pounds a month since the first of the year would give 760,000,000 pounds; that

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is, consumption and production have been about equal. If 10,000,000 to 20,000,000 pounds a month were exported from South America and included in the export report, then it would be necessary to add this 10,000,000 to 20,000,000 pounds a month to the refined production, one offsetting the other approximately.

If it be assumed that all the rough copper produced in the United States, South America, Mexico and Canada—which has averaged close to 200,000,000 pounds a month since the first of the year—was not refined and consequently refined stocks reduced, there must have been an increase in blister stocks. It is claimed that production at United States smelters fell off somewhat in April as a result of workers leaving the mines for the farms but this does not apply to South American and Mexican operations.

Another interesting phase of the market is that American electrolytic copper was sold at 17.39c c.i.f. European ports and at 17.12½c f.a.s. New York early in April. At the close of the month it was quoted at 16.55c c.i.f. European points and 16.25c f.a.s. New York.

Another important phase which is just being developed is in regard to imports. In December Government statistics indicated imports at 75,000,000 pounds. In January, according to reports just received, imports into this country dropped to 38,000,000 pounds. Apparently this sudden and surprising decrease is due to the fact that upward of 20,000,000

EXPORTS OF COPPER.

As compiled by the New York Metal Exchange from Custom House returns, in tons of 2,240 lbs.

	1923.	1922.	1921.	1920.
Jan.	23,409	24,679	24,068	21,804
Feb.	21,643	22,910	27,748	25,700
Mar.	.....	35,851	17,151	39,236
April	.....	28,367	18,397	28,644
May	.....	27,894	15,736	37,090
June	.....	29,191	22,339	25,581
July	.....	28,584	22,774	20,430
Aug.	.....	26,889	19,110	20,121
Sept.	.....	25,144	28,343	10,751
Oct.	.....	22,681	22,934	10,073
Nov.	.....	24,727	32,407	16,954
Dec.	.....	22,201	27,394	18,304
Total	.....	319,118	278,401	274,688

Annual Totals.

1919	227,169		
1918	328,844	1913	382,810
1917	493,256	1912	327,965
1916	327,310	1911	336,801
1915	270,704	1910	301,935
1914	360,229	1909	301,657

LAKE COPPER PRICES

Average prices in New York

	1923.	1922.	1921.	1920.	1919.
Jan.	14.92	13.76	13.53	19.76	21.75
Feb.	15.76	13.24	13.33	19.09	17.87
Mar.	17.26	13.03	12.58	18.87	15.48
April	17.13	12.91	12.89	19.05	15.73
May	.....	13.42	13.12	18.85	16.30
June	.....	13.97	13.04	18.55	17.93
July	.....	14.07	12.75	18.83	22.08
Aug.	.....	14.09	12.11	18.72	22.96
Sept.	.....	14.19	12.23	18.53	22.48
Oct.	.....	14.16	13.01	16.87	21.94
Nov.	.....	14.07	13.30	14.97	20.49
Dec.	.....	14.46	13.80	14.01	18.88
Average	.....	13.78	12.98	18.01	19.49

Annual Averages.

1918	24.68	1913	15.70
1917	29.18	1912	16.58
1916	28.17	1911	12.71
1915	17.64	1910	13.12
1914	13.61	1909	13.39

ELECTROLYTIC COPPER PRICES

Average prices in New York

	1923.	1922.	1921.	1920.	1919.
Jan.	14.66	13.60	12.85	19.02	20.00
Feb.	15.50	12.97	12.79	18.61	16.91
Mar.	16.95	12.84	12.23	18.36	15.01
April	16.81	12.71	12.54	18.54	15.40
May	.....	13.29	12.83	18.28	16.01
June	.....	13.71	12.76	17.97	17.65
July	.....	13.90	12.35	18.61	21.71
Aug.	.....	13.96	11.76	18.44	22.22
Sept.	.....	13.88	12.10	18.04	21.95
Oct.	.....	13.80	12.75	16.30	21.50
Nov.	.....	13.79	13.16	14.39	19.96
Dec.	.....	14.22	13.67	13.48	18.48
Average	.....	13.55	12.65	17.50	18.90

Annual Averages.

1918	24.68	1913	15.52
1917	29.19	1912	16.48
1916	28.46	1911	12.55
1915	17.47	1910	12.88
1914	13.31	1909	13.11

CASTING COPPER PRICES

Average prices in New York

	1923.	1922.	1921.	1920.	1919.
Jan.	14.30	12.96	12.61	18.81	18.48
Feb.	15.15	12.61	12.45	18.21	16.45
Mar.	16.64	12.54	11.83	18.11	14.82
April	16.60	12.46	11.82	18.40	15.06
May	.....	12.84	12.24	18.16	15.49
June	.....	13.33	12.08	17.65	17.17
July	.....	13.34	11.68	18.12	21.10
Aug.	.....	13.43	11.43	18.00	21.71
Sept.	.....	13.39	11.75	17.76	21.28
Oct.	.....	13.39	12.43	16.01	20.66
Nov.	.....	13.40	12.53	14.12	19.37
Dec.	.....	13.81	12.97	13.12	18.21
Average	.....	13.13	12.15	17.21	18.32

Annual Averages.

1918	24.68	1914	13.18
1917	27.64	1913	15.33
1916	26.51	1912	16.29
1915	16.76	1911	12.42

pounds of refined copper were exported from South America to Europe, this copper having previously come to this country. Very shortly, however, much of the Chile copper which has been going abroad will again come to the United States.

COPPER AND BRASS PRODUCTS

The advancing tendency in prices of wrought copper and brass prices which was such a marked feature of business in the first quarter of the year came to an abrupt halt early in April. Throughout last month no revision in prices was reported by the largest interest although the price of unwrought copper quoted by producers receded ¾c a pound and prices in the open market made by resale lots dropped ¾c to 1c a pound. Toward the close of April some of the smaller manufacturers of copper wire and rods granted concessions of ¼c a pound and it was reported that even lower prices would be made if necessary in competition for business.

Large manufacturers, however, were not inclined to seek business at the expense of prices, pointing out that higher wages paid to labor had to some extent offset the lower prices for unwrought copper and brass but even if these expenses failed to aggregate the reduction in cost of unwrought copper manufacturers were not inclined to seek business at concessions, preferring rather to await developments, because with order books full, interest was centered more in deliveries against contracts than in securing new business.

The demand from power companies, telephone and telegraph companies, manufacturers of electrical equipment, railroads and manufacturers of machinery was relatively light throughout April as was to be expected because requirements of such companies, as well as of manufacturers of wrought copper and brass, were covered for the first half during the first quarter of the year to a very large extent.

Not a few small consumers, however, continued to place orders for rolled products during the first half of April and it was not until late in the month that the largest interests noted any important decrease in business which was welcome rather than otherwise. The demand for shipment against contracts was as strong as ever. Under theses circumstances plant operations continued active, various

BRASS AND COPPER PRODUCTS.

The last two price lists issued follow:

COPPER PRODUCTS.

	Mar. 20	Mar. 29
Sheet copper	25¼	25½
Copper bottoms	33¾	34
Copper in rolls	23¾	24
Brush copper	26¼	26½
Sawed cpper	26	26¼
Drawn copper shapes	23¾	24
Commutator copper	25	25¼

BRASS PRODUCTS.

Sheet Metal.

High brass	21½	21¾
Low brass	23¼	23½
Rich low brass	23¾	24
Commercial bronze	25⅛	25⅜
Common gilding	25⅛	25⅜
Best spring drawing and spinning brass	22½	22¾

Wire.

High brass	22	22¼
Low brass	23¾	24
Commercial bronze and gilding	25⅝	25⅞
Best spring and brazing brass	23	23¼

Rods.

High brass (free turning)	19¾	20
Low brass	24	24¼
Commercial bronze	25⅞	26⅛

Brazed Tubes.

Brass	29¼	29¾
Copper and commercial bronze	34⅝	35⅛
Open seam brass	29¼	29¾
Open seam copper and commercial bronze	34⅝	35⅛

Seamless Tubes.

	Mar. 16	Mar. 22
High brass	26	26½
Low brass	28	28½
Commercial bronze	29	29½
Copper	27½	28

NICKEL SILVER.

	Mar. 20	Mar. 29
10% grade A sheet metal	28½	28¾
15% " " " "	29¾	30
18% " " " "	30¾	31
25% " " " "	41	41¼
5% grade B sheet metal	26½	26¾
10% " " " "	27¾	28
12% " " " "	28¾	29
15% " " " "	29¼	29½
18% " " " "	30¼	30½
25% " " " "	40½	40¾
5% wire and rod	28½	28¾
10% " " "	31¼	31½
12% " " "	33	33¼
15% " " "	34¾	35
18% " " "	37¾	38

departments running from 80% to 100% of capacity. Some manufacturers point out that expenses of operation in April were not only increased by advances in wages but by an increase in overhead expenses.

Decrease in building operations came too late in the month to be reflected in less active call for rolled copper and brass and hardware. It was evident, however, towards the close of the month that the slackening in business operations was having a psychological and moral effect at least upon consumers who were disposed to be extremely conservative, due more to the attitude of labor than to the high prices being paid for building material.

It is estimated that copper products consumed in building construction in the first quarter of this year were approximately 57,500,000 pounds which is at a rate of 230,000,000 pounds a year against an estimated consumption in 1922 by the same industry of 150,000,000 pounds, according to a survey made by the Copper and Brass Research Association, which points out that last year 1,805,500 pounds of copper was used for replacing leaders and gutters on houses. The same organization also estimates that this year over 90,000,000 pounds of copper will be consumed in the manufacture of flashings, over 83,235,000 pounds will be used for leaders and gutters and 7,600,000 pounds for cornices, store fronts and similar other work. The Survey's estimate is probably based upon the heavy consumption in the first quarter of the year, but doubtless some revision will be necessary in the light of the decreases in building operations now evident.

IMPORTS OF COPPER.

As compiled by the New York Metal Exchange and reduced to fine copper, in tons of 2,240 lbs.

	1923.	1922.	1921.	1920.
Jan.	16,500	5,500	17,500	16,500
Feb.	.....	10,000	18,000	20,000
Mar.	.....	15,000	10,000	17,500
April	.....	16,000	15,500	12,000
May	.....	12,000	7,000	23,000
June	.....	19,000	9,000	22,000
July	.....	19,500	14,000	12,000
Aug.	.....	21,000	10,000	13,000
Sept.	.....	25,000	10,500	12,500
Oct.	.....	18,000	14,500	14,500
Nov.	.....	33,000	11,000	16,000
Dec.	.....	26,000	14,000	17,500
Totals ...	.....	220,000	151,000	196,500

Annual Totals.

1919	187,000	1913	181,000
1918	251,000	1912	179,000
1917	242,000	1911	152,000
1916	199,000	1910	153,000
1915	137,500	1909	140,000
1914	134,000	1908	97,700

TIN IN APRIL

The tin market in April was a fluctuating one, reactions being followed by advances that were of short duration, the net result being a decline of 3¼c for the month. Opening for spot Straits at 47.87½c, the market declined to 46.55c by the 10th, recovering the next day to 47.50c, declining the following day to 46.75c, and steadily declining thereafter until 44.25c was reached on April 20th; recovering to 45.50c in the next two days, declining to 44.50c the following day, and to 44.12½c on April 26th, recovering to 44.75c on April 29th and closing at 44.62½c.

The London fluctuations during the month were very much of the same kind, but throughout the month the tendency was for New York prices to rule below the London equivalent of cost of import, caused by our consumers showing little buying interest and New York traders at times showing eagerness to make sales, and in consequence comparatively few orders reached abroad from this side during the month.

The declines when they took place failed to create consuming buying, and the recoveries when they took place were in every instance caused by trading operations, which when traders found that there was no response from consumers the buying ceased and prices again sought a lower level.

The indifference of the American consumer was also felt in London, and proved throughout the month a damper on efforts of speculators there to improve prices.

The most interesting development during the month was the announcement April 12th that the parties to the Bandoeng agreement had agreed to a gradual liquidation of all of their tin holdings amounting to approximately 17,500 tons. Under this new agreement the holders are privileged, according to their individual discretion, either to hold or to sell up to 5% of their stocks per month, commencing April 1st. The arrangement permits of the liquidation of the entire 17,500 tons in 20 months, or

MONTHLY TIN STATISTICS

As published by the New York Metal Exchange in tons of 2,240 pounds:

	April 1923.	Mar. 1923.	April 1922.
Supplies—			
Straits	4,490	6,020	5,626
Australian	120	200	40
Banka and Billiton	1,184	1,077	1,948
Chinese	1,069	510	726
Standard	590	1,293	585
	7,453	9,060	8,925
Deliveries—			
U. K. all kinds	1,410	1,468	2,024
U. S. A. all kinds	6,775	6,634	4,995
Continent, all kinds	1,774	1,493	1,147
	9,959	9,595	8,166
Decrease in total visible supply	2,506	535	*759
Stocks—			
U. K. all kinds	4,352	4,973	7,125
U. S. A. all kinds	3,577	4,067	2,710
Continent, all kinds	2,444	2,345	2,975
	10,373	11,385	12,830

* Increase.

Afloat—	1923.	1923.	1922.
U. K. all kinds	1,385	734	2,296
U. S. A. all kinds	8,914	10,513	6,785
Continent, all kinds	1,444	1,990	2,006
	11,743	13,237	11,087
Tot. visible supply	22,116	24,622	23,917

STRAITS TIN PRICES.

Average prices of Straits tin for prompt delivery in New York.

	1923.	1922	1921.	1920.	1919.
Jan.	39.17	32.11	36.11	62.89	72.50
Feb.	42.03	30.82	32.47	60.00	72.00
Mar.	48.65	29.17	28.85	61.99	71.75
April	45.87	30.65	30.41	62.20	72.26
May	.....	30.97	32.52	55.07	71.94
June	.....	31.54	29.57	48.62	71.20
July	.....	31.82	27.69	49.37	70.39
Aug.	.....	32.43	26.40	47.69	63.78
Sept.	.....	32.40	26.73	44.62	55.81
Oct.	.....	34.64	27.74	40.64	55.62
Nov.	.....	36.72	29.02	37.02	54.17
Dec.	.....	37.68	32.49	34.15	55.06
Average	.....	32.58	30.00	50.36	65.54

Yearly Averages.

1919	65.54	1914	35.70
1918	86.80	1913	44.32
1917	61.65	1912	46.43
1916	43.48	1911	42.68
1915	38.66	1910	34.27

TIN DELIVERIES IN UNITED STATES

Monthly deliveries of tin in United States, exclusive of domestic refined tin, in tons of 2,240 pounds.

	†1923.	1922.	1921.	1920.	1919.
Jan.	6,625	4,275	1,555	3,910	1,850
Feb.	6,185	3,215	1,585	5,200	2,450
Mar.	6,634	6,030	1,683	5,130	2,070
April	6,775	4,995	1,590	3,305	36
May	.....	4,740	1,225	3,550	20
June	.....	5,130	1,590	6,500	68
July	.....	4,590	1,525	5,530	132
Aug.	.....	4,150	3,320	3,745	4,345
Sept.	.....	5,050	2,605	4,860	4,825
Oct.	.....	5,603	2,280	3,415	2,875
Nov.	.....	4,812	3,250	3,395	6,665
Dec.	.....	4,870	3,710	2,580	6,965
Total	.....	57,460	25,918	51,120	32,301

VISIBLE SUPPLY OF TIN

World's visible supply of tin at end of each month in tons of 2,240 pounds.

	†1923.	1922.	1921.	1920.
Jan.	25,765	26,216	18,994	21,056
Feb	25,157	25,047	17,074	21,586
Mar.	24,622	22,353	16,073	18,305
April	22,116	22,017	15,670	19,342
May	.....	22,910	18,352	20,976
June	.....	23,566	17,968	18,851
July	.....	21,502	20,316	18,546
Aug.	.....	24,176*	19,358	19,858
Sept.	.....	22,879*	21,189	18,996
Oct.	.....	22,902	23,349	19,964
Nov.	.....	25,286	22,806	19,823
Dec.	.....	24,930	25,220	19,410
Average	.....	23,649	19,697	19,726

* Includes current shipments of Banka and Chinese to U. S.

Annual Averages.

1919	12,890	1914	14,907
1918	13,894	1913	12,377
1917	18,803	1912	13,207
1916	18,585	1911	16,404
1915	15,208	1910	18,815

TIN SHIPMENTS FROM STRAITS

(Tons of 2,240 lbs.)

	†1923.	1922.	1921.	1920.	1919.
Jan.	6,255	5,515	1,055	3,910	3,340
Feb.	4,655	3,640	240	4,810	2,860
Mar.	6,020	4,985	915	2,795	2,254
April	4,490	5,350	1,800	3,872	1,127
May	.....	6,420	3,667	4,930	1,704
June	.....	6,505	1,425	4,261	1,629
July	.....	4,035	3,975	3,865	7,302
Aug.	.....	5,855	3,165	3,798	8,829
Sept.	.....	4,050	5,300	4,529	5,465
Oct.	.....	5,650	4,525	3,340	4,431
Nov.	.....	6,145	4,065	2,630	4,135
Dec.	.....	4,635	5,920	2,225	6,677
Total	.....	62,785	36,052	44,965	49,763

Annual Totals

1918	*55,000	1914	63,093
1917	62,366	1913	62,550
1916	61,587	1912	59,318
1915	66,517	1911	55,470

† Note—London Metal Exchange statistics. * Estimated.

by December 1st, 1924, or at the rate of about 900 tons per month.

The tin covered by the Bandoeng agreement was accumulated in the latter part of 1920 and the early part of 1921 at an average price of about £220 per ton, and with the exception of the holdings of the Billiton Company, which were released about a year ago, have been held intact up to the present time. The tin was bought by the Federated Malay States Government, the Dutch Government and Eastern smelting companies in order to preserve the tin-mining industries and Federated Malay States in Batavia, which were threatened by the collapse in the world's demands through the business slump in 1920.

What it really amounts to is that 17,500 tons of tin which have been carried for more than two years as invisible stocks will come into the visible supply during the next twenty months, but not necessarily at the rate of exactly 900 tons per month. The owners have the discretion either to sell 5% per month or to hold back, and it is a natural inference that the selling will be in larger volume when the prices are high than when the prices are low.

This development and the reaction in price during the past six weeks of nearly 7.00c per pound has shaken faith of consumers and traders in the market, and it is now the fashion to claim that the advance was entirely manipulation and speculation. The facts are that the advance was caused by the enormous purchases of American consumers in the past five or six months to take care of the heavy increase in the consumption of the metal which has taken place and illustrated by the record deliveries in this country during the past four months of 26,219 tons of imported tin.

Speculation is always ready, especially in the case of tin, to exploit such a situation.

The statistics compiled by the New York Metal Exchange show that the world's visible supply of tin underwent a decrease of 2,506 tons during April. The very heavy American deliveries (6,775 tons) and the small shipments from the Straits (4,490 tons) caused the first really large reduction in the visible supply in many months, but even so the total of 22,116 tons on April 30th was only some 1,800 tons less than it was on the corresponding date a year ago.

These statistics are very favorable, but deliveries represent business done weeks and months ago, and while they will undoubtedly have a strengthening effect on the market temporarily it is not believed by the trade either here or abroad that there will be another such reduction in visible supplies for a long time to come.

The tin situation is not an unfavorable one, but the future of prices will undoubtedly depend on the course of business in America, and what is to be the outcome of the recent lull in consumers' purchases whether it represents a

TIN PRICES IN APRIL

Day	New York Straits	New York 99%.	London Stand. £ s. d.	London Straits. £ s. d.	Singapore Straits. £ s. d.
2	47.87½	46.12½	Holiday	Holiday	Holiday
3	47.75	46.00	219 0 0	229 0 0	229 0 0
4	46.87½	45.00	214 0 0	224 0 0	228 0 0
5	46.50	44.75	212 10 0	222 10 0	222 0 0
6	46.87½	45.00	214 10 0	224 10 0	222 0 0
9	46.62½	44.75	213 17 6	223 17 6	223 0 0
10	46.50	44.75	215 0 0	225 0 0	221 10 0
11	47.50	45.75	218 15 0	228 15 0	224 0 0
12	46.75	45.00	217 0 0	227 0 0	228 5 0
13	46.50	44.87½	215 10 0	225 10 0	222 5 0
16	46.00	44.12½	214 0 0	224 0 0	220 10 0
17	45.37½	43.62½	211 15 0	221 15 0	220 0 0
18	44.75	43.50	209 5 0	219 5 0	216 10 0
19	44.62½	43.50	208 15 0	218 15 0	214 10 0
20	44.25	43.25	207 15 0	217 15 0	213 10 0
23	45.12½	nominal	212 15 0	222 15 0	213 5 0
24	45.50	"	215 15 0	222 15 0	220 5 0
25	44.37½	"	210 5 0	217 5 0	216 10 0
26	44.12½	"	209 10 0	216 10 0	212 10 0
27	44.75	"	211 0 0	217 0 0	213 5 0
30	44.75	"	210 15 0	216 15 0	214 0 0
High .	47.87½	46.12½	219 0 0	229 0 0	229 0 0
Low .	44.12½	43.25	207 15 0	216 10 0	212 10 0
Aver. .	45.87	44.67	213 1 8	222 4 7	219 14 9

WORLD'S VISIBLE SUPPLY OF TIN

As compiled by the New York Metal Exchange in tons of 2,240 pounds.

	1920.	1921.	1922*	1923.*
Jan. ..	21,056	18,994	27,978	25,765
Feb. ..	21,586	17,074	25,829	25,157
March .	18,305	16,073	23,158	24,622
April .	19,342	15,670	23,917	22,116
May ..	20,976	18,352	25,143	
June ..	18,851	17,968	24,082	
July ..	18,546	20,316	23,371	
Aug. ..	19,858	19,358	25,242	
Sept. .	18,996	21,189	22,933	
Oct. ..	19,964	23,349	23,526	
Nov. ..	19,823	22,806	25,961	
Dec. ..	19,410	25,220	25,000	

* Commencing in January 1922, the current month's shipments of Banka and Chinese tin were included in statistics for the first time and have been so included every month since then.

real change in future consumption activity or only a pause in the recent pace at which business generally was travelling.

Operations of factories consuming tin have not diminished, and with well-filled order books manufacturers look forward to active conditions for at least another three months. Between now and July another large buying movement may set in and it will be all the sounder if it rests on a fair and reasonable price basis. The good will or confidence of ultimate consumers could not be retained had producers and manufacturers continued to pyramid prices in the same manner as we witnessed during the past few months.

LEAD PRICES, ST. LOUIS.

Average Prices, East St. Louis Basis.

	1923.	1922.	1921.	1920.	1919.
Jan. ...	7.64	4.40	4.78	8.32	5.36
Feb. ...	8.16	4.40	4.29	8.62	4.83
Mar. ..	8.33	4.43	4.03	8.93	5.01
April ..	8.03	4.97	4.30	8.71	4.87
May ...	....	5.30	4.82	8.52	4.80
June ...	....	5.58	4.34	8.36	5.06
July ...	....	5.45	4.28	8.58	5.42
Aug. ...	....	5.55	4.23	8.89	5.60
Sept. ..	....	5.90	4.41	8.23	5.81
Oct.	....	6.36	4.47	7.08	6.22
Nov. ...	....	6.88	4.38	6.16	6.68
Dec. ...	....	6.99	4.40	4.75	6.96
Year ...	....	5.52	4.39	7.93	5.55

Annual Averages

1918	7.25	1913	4.26
1917	8.92	1912	4.38
1916	6.80	1911	4.31
1915	4.57	1910	4.33
1914	3.74	1909	4.10

LEAD PRICE CHANGES.

The American Smelting & Refining Company's changes in the base price of lead since the beginning of 1922 are given below:

1922—			Oct.	6	6.50
Opening	4.70		Nov.	1	6.75
Mar. 30	4.80		"	2	7.00
April 3 ...2	4.90		"	24	7.10
" 7	5.00		Dec.	19	7.25
" 20	5.10				
" 24	5.25		1923—		
May 16	5.35		Jan.	9	7.40
" 18	5.50		"	10	7.50
" 29	5.65		"	22	7.75
June 7	5.75		"	23	8.00
Aug. 21	5.90		Feb.	23	8.10
Sept. 14	6.00		Mar.	1	8.15
" 19	6.10		"	2	8.25
" 22	6.25		April	19	8.00
" 27	6.35		"	28	7.75

LEAD IN APRIL

The market for lead had in April its first set-back since the upward movement began in 1921. The long upward trend, covering about twenty months without a break, surpassed all records in duration, its long extent being in part due to the conservative scale on which fractional advances were made by the smelters according to the prevailing conditions.

On April 19th, the American Smelting & Refining Company reduced its average contract base price from 8.25c New York to 8.00c, and again on April 28th to 7.75c.

The immediate cause of these reductions was the weakness of the foreign market, due to the small demand abroad, where the limited consumption has been in extreme contrast to the enormous volume in this country. During the first three weeks of April foreign lead declined £3 per ton to £25 7s 6d, permitting considerable imports to this country at around 7.62½c duty paid.

Apart from the threat of foreign lead, the domestic market of itself was in almost as strong a position at the end of April as at any time, for consumption still continued with no diminution and the prospects for its continuance over

LEAD AND ZINC PRICES IN APRIL

Day	——LEAD—— New York *	St. Louis †	London £ s d	——ZINC—— New York	St. Louis §	London £ s d
2 .	8.25	8.62½	8.22½ holiday	8.07½	7.72½	holiday
3 .	8.25	8.62½	8.22½ 28 5 0	8.07½	7.72½	32 2 6
4 .	8.25	8.55	8.22½ 28 5 0	8.00	7.65	35 12 6
5 .	8.25	8.55	8.20 28 5 0	7.85	7.50	35 12 6
6 .	8.25	8.55	8.20 28 7 6	7.85	7.50	35 2 6
7 .	8.25	8.55	8.20	....	....	.. .. .
9 .	8.25	8.55	8.20 27 17 6	7.72½	7.37½	33 17 6
10 .	8.25	8.55	8.20 27 15 0	7.80	7.45	35 0 0
11 .	8.25	8.47½	8.17½ 27 12 6	7.85	7.50	35 12 6
12 .	8.25	8.37½	8.17½ 27 2 6	7.80	7.45	34 15 0
13 .	8.25	8.32½	8.17½ 27 0 0	7.82½	7.47½	35 0 0
14 .	8.25	8.32½	8.17½	....	....	.. .. .
16 .	8.25	8.32½	8.17½ 27 7 6	7.77½	7.42½	35 0 0
17 .	8.25	8.32½	8.15 27 0 0	7.70	7.35	34 12 6
18 .	8.25	8.32½	8.15 26 10 0	7.65	7.30	33 17 6
19 .	8.00	8.12½	7.90 26 12 6	7.55	7.20	34 5 0
20 .	8.00	8.12½	7.87½ 26 5 0	7.52½	7.17½	34 0 0
21 .	8.00	8.12½	7.87½	....	....	.. .. .
23 .	8.00	8.12½	7.82½ 26 0 0	7.47½	7.12½	33 17 6
24 .	8.00	8.12½	7.80 26 5 0	7.45	7.10	33 12 6
25 .	8.00	8.12½	7.80 26 0 0	7.37½	7.02½	32 17 6
26 .	8.00	8.12½	7.80 25 10 0	7.35	7.00	32 10 0
27 .	8.00	8.12½	7.75 25 7 6	7.25	6.90	31 17 6
28 .	7.75	8.12½	7.75	....	....	.. .. .
30 .	7.75	7.95	7.60 25 15 0	7.20	6.85	32 5 0
High	8.25	8.75	8.25 28 7 6	8.10	7.75	35 12 6
Low	7.75	7.90	7.60 25 7 6	7.20	6.85	31 17 6
Av.	8.13	8.32	8.03 26 19 2	7.67	7.32	34 1 6

* A. S. & R. price.
† Outside market. § Prime Western.

at least the next quarter appear good. There was throughout the month an actual shortage of spot lead in the New York district, and the spot supply in the middle west was far from heavy, though showing some apparent gain towards the end of the month, and domestic production has in fact as yet gained but slowly on domestic consumption.

At the prevailing high figures for lead, consumers have shown great caution in buying at fixed prices and their contract deliveries from producers have been fairly well up to schedule, so that the volume of new orders has not been large, and the reduction in price did not change buyers' conservative attitude.

There appears to be some increase in Spanish and Australian output, but it is reported that the recent high rate of production in Mexico, recently about 20,000 tons monthly, is not likely to be maintained.

At the present time the foreign level appears the most important factor, and at the end of April London prices showed some slight recovery. But the impression generally obtains that April has seen the peak of the movement in lead.

ZINC IN APRIL

The decline in slab zinc which started in the latter part of March continued steadily during April, the price of prompt prime western at the end of April being 6.80c E. St. Louis basis, a recession of nearly a cent per pound for the month.

The statistical position at the end of March was strong in respect to stocks on hand, these having been reduced 843 tons during March, leaving only 10,021 tons in smelters' hands. The March output was 48,731 tons, but the shipments reached the high total of 49,574 tons, of which 3,092 were for export.

It was, therefore, not from any pressure of spot stocks that the market declined. The recession was due to three causes: first the desire of producers to book orders for futures; secondly, the steady decline in London (amounting to over £4 per ton for the month); thirdly, the almost complete absence of domestic buying.

As to the first of these causes (the desire for future orders) it must be pointed out that the rate of production has been steadily climbing, the number of retorts in operation at the end of March being 89,043, an increase of 2,123 for that month. And while shipments have recently been more than enough for the output, a prospective large production would have to be provided for if it was to continue.

As to foreign demand, two months have passed now without foreign buying, London being too low to permit of export, (the shipments during March were of course bought earlier). The London decline was due to increased supplies from the continent and small demand, Germany being a seller, and also Belgium. The Belgian output for March was over 12,000 tons, and for the first quarter of the year 40% greater than for the same period in 1922.

U. S. ZINC STATISTICS.

From the monthly reports of the American Zinc Institute, in tons of 2,000 lbs.

	Production		Deliveries	
	1923.	1922.	1923.	1922.
Jan. ..	23,706	25,916	24,636	21,021
Feb. ..	42,443	22,513	48,153	24,067
Mar. ..	48,731	26,532	49,574	30,394
April .	.....	25,506	.....	34,040
May ..	.....	27,419	.....	38,738
June ..	.....	28,547	.....	39,380
July ..	.....	31,917	.....	32,875
Aug. ..	.....	31,423	.....	38,412
Sept. ..	.....	33,134	.....	35,957
Oct. ..	.....	39,940	.....	40,703
Nov. ..	.....	40,200	.....	38,746
Dec. ..	.....	42,841	.....	44,086
Total	.....	373,678	.....	422,034

	Stocks at Smelters*		Retorts In Operation*	
	1923.	1922.	1923.	1922.
Jan. ..	16,574	65,678	84,131	44,457
Feb. ..	10,864	64,124	86,931	43,357
Mar. ..	10,021	60,262	89,054	45,373
April .	.....	51,728	.....	42,773
May ..	.....	40,409	.....	48,765
June ..	.....	29,576	.....	52,677
July ..	.....	28,618	.....	54,909
Aug. ..	.....	21,629	.....	57,193
Sept. ..	.....	18,806	.....	65,936
Oct. ...	.....	18,043	.....	72,116
Nov. ..	.....	19,947	.....	75,664
Dec. ..	.....	18,252	.....	80,863

* At the end of month.

London has dropped in fact so far below the point of possible export that a return of foreign buying here has become extremely doubtful, but still during April each successive decline abroad had its effect on this market.

As to the third and, perhaps the principal cause of the decline here, absence of domestic demand, there was throughout April an exceedingly conservative feeling among buyers of nearly all commodities, very pronounced in zinc. Consumers' operations were large, both with the galvanizers and brass mills, but they were well supplied for immediate needs, and new orders for their own products showed some falling off. And buyers' hesitation to contract further ahead was intensified by the falling market.

At the end of April, the relative prices of zinc ore and slab zinc had made smelting a very narrow proposition, though the price of zinc ore declined during the month about $8.00 per ton.

JOPLIN ZINC AND LEAD ORE

Review for April 1923

The month of April showed a decided slowing down in both shipments and prices. Shipments, while large, did not reach the record-breaking figures for March. The average shipment per week was 15,629 tons as against 18,837 tons per week the previous month for zinc ores. Prices also declined from an aver age of $48.15 for March to $43.30 for the month of April. Calamine prices held steady at $29.00 per ton, shipments averaging 300 tons per week. Purchases of zinc ore also dropped and some companies were not taking even their minimum quota from the district, especially during the latter part of the month.

Prices of zinc ores averaged from $47.50 base at the beginning of the month to as low as $38.00 at the close of the month. This decrease in prices has put a considerable damper upon the promoting activity of the district, and will probably have the effect of slowing down actual mining actviities, although it appears that prospecting activity continues to grow.

Lead ores also took the toboggan during the month just closed and each week showed some decline, the market closing at $100.00 to $105.00 per ton against the opening price of $115.00 per ton. The anies were not taken even their mini- average for the month for all grades of ore was $110.27. The average shipment of lead ores during the month was 1,911 tons.

It is estimated that the surplus stocks decreased 5,000 tons during the month, leaving stocks at approximately 55,000 tons in bins of the ore producers.

Only 30 days ago mine operators increased the wage scale for all classes of mining employees when zinc prices reached $48.00 per ton. The past week noted the cutting of the price again back to the old level when the price of ore went under $40.00. There is quite a demand for labor in the district, but the labor desired is principally skilled labor, such as machine men, although there are a number of shovelers needed in the district.

It is noted that there is a constantly increasing tendency of mine operators to take up leases in the old Missouri camps north and east of Neck City and Alba, some of the largest operating concerns in the field are among those taking leases in this part of the district. Such Companies as the American Zinc, Lead & Smelting Company, Eagle-Bicher Lead Company are among those who have drills now at work in this territory.

PRIME WESTERN ZINC PRICES.

Average Prices, East St. Louis Basis.

	1923	1922	1921	1920	1919	1918
Jan. .	6.96	4.71	5.44	9.22	7.12	7.71
Feb. .	7.25	4.50	4.95	8.82	6.37	7.73
Mar. .	7.87	4.65	4.73	8.62	6.18	7.42
Apr. .	7.32	4.91	4.75	8.26	6.16	6.81
May .	....	5.10	4.86	7.72	6.11	7.14
June .	....	5.35	4.44	7.58	6.57	7.85
July .	....	5.77	4.27	7.82	7.56	8.43
Aug. .	....	6.24	4.19	7.95	7.50	8.73
Sept. .	....	6.56	4.25	7.77	7.20	9.31
Oct. .	....	6.85	4.61	7.25	7.49	8.77
Nov. .	....	7.14	4.68	6.37	7.83	8.39
Dec. .	....	7.12	4.85	5.84	8.40	8.21
Av. ..	....	5.74	4.67	7.77	7.04	8.04

Annual Averages.

1917.....	8.93	1912.....	6.93
1916.....	13.57	1911.....	5.70
1915.....	14.16	1910.....	5.42
1914.....	5.11	1909.....	5.39
1913.....	5.61	1908.....	4.62

ALUMINUMIN APRIL

The Aluminum Company of America, as well as some other foreign makers of aluminum are reported to be behind in shipments against contracts. Supplies available for sale in the open market are light but occasionally foreign aluminum arriving in New York against contracts is offered for resale, depending upon the ability of consumers in the interior to replace supplies in the west to advantage. There are also some small lots of Italian metal in form of bars weighing nine pounds offered on the eastern market which are available at a shade under offerings of French and British aluminum.

Throughout April there was scarcely enough business to establish new prices but at the beginning of May prices are fractionally higher, 99% virgin being quotable at $27.00 to $27.50 by foreign importers, but there were few if any lots, outside of the Italian light bars, which could be purchased for less in the local market. The shortage of fuel in Europe is still a factor in delaying production of aluminum abroad. The prospect is that in the near future there will be some increase in offerings of Swiss aluminum through local agents.

Consumers in the interior, apparently, have ample stocks and with deliveries against contracts there is an ample supply to meet consumptive needs from week to week.

The value of aluminum produced in the United States in 1922, according to estimates of the Geological Survey, was $13,622,000, being an increase of about 25% over the value of the production in 1921. In the first half of 1922 domestic aluminum 99% virgin sold at 20c a pound. In August the price was advanced 1/10c per pound and on the passage of the tariff act the price rose to 23c a pound. Exports from the United States in 1922 amounted to 8,895,964 pounds, made up of 1,538,079 of ingot, scrap and aluminum alloys, 2,808,946 pounds of plates, sheets, bars, strips and rods and 4,548,939 pounds of manufactured aluminum ware.

In 1922 8,645,076 pounds of virgin aluminum were imported into the United States from Norway, the value of these shipments being $1,442,213. A small aluminum works at Stangfiord, Norway, belonging to the British Aluminum Corporation, Ltd., was put into operation on January 1st, 1923, but probably none of this output will be imported into the United States.

ALUMINUM, ANTIMONY, SILVER AND STERLING EXCHANGE QUOTATIONS IN APRIL

Day	Aluminum	Antimony	Silver — N. Y.	Silver — London.	Sterling Exch.*
2	26.00	8.87½	.68¼	Holiday	$4.67⅝
3	26.00	8.75	.68⅛	32 13/16	4.66⅞
4	26.00	8.75	.67½	32 9/16	4.66⅝
5	26.00	8.75	.66⅜	32¼	4.66¾
6	26.00	8.75	.66⅜	32 1/16	4.66½
7	.....	....	.66½	32 3/16	....
9	26.00	8.67½	.66¼	32 1/16	4.65¾
10	26.00	8.60	.65¼	32½	4.65½
11	26.00	8.60	.65⅜	32½	4.66¼
12	26.00	8.50	.65⅞	32 15/16	4.65½
13	26.00	8.50	.66⅛	32	4.65¾
14	.....	....	.66½	32 3/16	....
16	26.00	8.37½	.66⅝	32¼	4.65
17	26.00	8.37½	.67	32 7/16	4.65½
18	26.00	8.37½	.66¾	32 5/16	4.65 7/16
19	26.00	8.25	.66¾	32⅛	4.65 13/16
20	26.00	8.12½	.66⅛	32⅛	4.65⅝
21	.....	....	.66½	32 3/16	....
23	26.00	8.06¼	.67	32 7/16	4.65
24	26.00	8.06¼	.67¼	32 9/16	4.64⅞
25	26.00	8.00	.67⅝	32 11/16	4.64¼
26	26.00	8.00	.67	32½	4.63½
27	26.00	7.87½	.67½	32⅝	4.63⅜
28	.....	....	.67¾	32 15/16	....
30	26.00	7.75	.68⅜	32 3/16	4.63⅜
High .	26.00	8.87½	.68⅜	32 15/16	4.67⅝
Low .	26.00	7.75	.65¼	32	4.63⅜
Aver. .	26.00	8.38	66.85	32.39	....

ALUMINUM PRICES.

Open market quotations on virgin aluminum 98-99% pure, in New York.

	1923.	1922.	1921.	1920.	1919.
Jan. ...	22.75	17.74	22.86	32.00	33.10
Feb. ...	23.25	17.33	24.50	31.83	32.26
Mar. ...	24.95	17.52	23.44	31.50	29.81
Apr. ...	26.00	18.06	23.25	31.61	30.67
May ...	.....	17.92	23.06	31.95	32.21
June ...	.....	17.87	22.75	32.00	32.83
July ...	.....	17.87	22.62	32.00	32.57
Aug. ...	.....	17.87	20.22	32.21	32.23
Sept. ..	.....	18.26	19.02	31.44	32.50
Oct. ...	.....	20.51	17.85	29.12	32.50
Nov. ...	.....	21.66	17.50	27.80	32.50
Dec. ...	.....	22.52	17.50	23.83	32.48
Av.	.....	18.68	21.21	30.61	32.14

Annual Averages.

1918.....	33.60	1914.....	18.59
1917.....	51.25	1913.....	23.63
1916.....	60.73	1912.....	22.52
1915.....	34.13	1911.....	20.34

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ANTIMONY IN APRIL

The market for antimony during April declined severely from 8.87½c duty paid New York at the beginning of the month to 7.75c at the close, for Chinese 99%.

The advance during February and March were mainly due to speculative buying, induced by an impression that antimony ought to have shared in the advances of the other non-ferrous metals during those months.

But since the advance no display of confidence on the part of consumers has materialized, and with a very dull condition speculative resale parcels afloat have been offered down at successively lower levels, becoming quite pressing as the date of their arrival has approached.

The Chinese price has also weakened, though not to the same extent, the prices quoted from that market at the close of April being around 6.25c to 6.50c c. i. f. New York in bond. Apparently the market must digest the second-hand parcels before the Chinese price can have any real bearing on the situation, and if the recent nominally high market here has encouraged Chinese output it seems doubtful if the figures now asked in China can be maintained. They are more than 50% above the price at which antimony in bond sold at in 1922, though the previous low figures may have been too low for profitable production. Chinese costs are difficult to determine.

ANTIMONY PRICES.

Prices for Chinese and Japanese antimony (ordinary grades) in New York.

	1923	1922	1921	1920	1919	1918
Jan.	6.81	4.45	5.22	10.53	7.59	14.23
Feb.	7.20	4.38	5.23	11.55	7.24	13.67
Mar.	8.75	4.25	5.30	10.97	6.83	13.12
April	8.38	4.88	5.15	10.45	6.82	12.52
May	....	5.42	5.25	9.44	7.56	12.41
June	....	5.13	5.06	7.93	8.37	12.99
July	....	5.08	4.68	7.43	8.81	13.18
Aug.	....	5.29	4.55	7.04	8.92	13.81
Sept.	....	6.43	4.53	7.10	8.53	13.93
Oct.	....	6.80	4.94	6.62	8.60	13.44
Nov.	....	6.54	4.66	6.05	9.06	9.10
Dec.	....	6.35	4.51	5.46	9.56	8.19
Av.	....	5.42	4.92	8.38	8.16	12.55

Annual Averages

1917	20.73	1913	7.43
1916	25.33	1912	7.68
1915	29.52	1911	7.48
1914	8.53	1910	7.27

QUICKSILVER IN APRIL

Early in April the steamship "Albert W. Selmer" brought in about 2,000 flasks of quicksilver to the port of New York but most all of it was delivered against contracts although some sales were made at $67.00 to $68.00, being a sharp falling off in prices as compared with those prevailing in March. Today the market is steadier at $67.00 to $67.50 per flask for importation and $68.00 to $68.50 per flask for small lots for prompt shipment from stock. Not since the first week in April have there been any appreciable lots of 50 to 100 flasks disposed of.

Mercurial manufacturers were the principal buyers of the large shipment which came in on the steamship "Selmer". Furriers and vermillion paint manufacturers also bought small tonnages. Several small lots are now afloat from Italy due here early in May. This is held at about $67.00. It is understood that some foreign metal for shipment from abroad is offered in appreciable lots at the equivalent of $64.00 to $66.00 dock New York duty paid.

The London market which was as high as £12 in March has also since dropped to £9 10s with a recent recovery to £10. The Italian market is too high to encourage shipments to the United States at the moment. Most of the Large domestic consumers have requirements well covered for the next two weeks at least but are expected to come into the market again in the latter part of May or early in June.

In California, according to the Geolgical Survey four mines were productive in 1922, but the output from all but the New Almaden group was very small. The New Idria mine continued non-productive, but the old Redington or Boston mine at Knoxville, Napa County, which has lain idle for many years, yielded some quicksilver and will probably be a larger producer this year, as a rotary furnace has been installed. In Texas, the Chisos mine, in the Terlinqua district, Brewster County, yielded more quicksilver than any other mine in the United States. The Mariscal mine, near McKinney Springs in the same county, was also productive. Prospecting was in progress at the Waldron mine, also located in the Terlinqua district. In Nevada, the only production recorded was made from deposits in the Pilot Mountain in Mineral County. The output from Oregon was practically negligible.

The tariff act of 1922, which went into effect on Sept. 21st, placed a duty on imported quicksilver of 25 cents a pound, equivalent to $18.75 a flask. At the end of the year the directors of the great Almaden mine in Spain, where extensive improvements have been in progress, reduced the price of quicksilver at the mine to the equivalent of about $45 per flask.

No important additions to known resources of domestic quicksilver were made during the year, but the effect of the new import duty probably will be seen in a moderate increase in domestic production this year.

NICKEL IN APRIL

It should not be surprising to learn that sales of nickel made in April were relatively small when it is recalled that probably 90% of the business placed is usually on long time contracts. In January and February contracts for shipment over 1923 were placed at prices ranging from 25.00c to 29.00c a pound. Since that time most of the business for relatively early shipment has been transacted at prices ranging from 29.00c to 32.00c a pound, depending upon the tonnage sold. Manufacturers of nickel-steel recently placed some supplementary orders although large contracts were placed early in the year for shipment at the rate of 1,000 to 2,000 tons a month over 1923.

As was pointed out in the American Metal Market early in February the total smelter capacity probably aggregates about 5,000 tons a month, that is, the world capacity, but capacity of the refineries is only 1,950 tons a month while the world's consumption is estimated at 2,000 tons a month. The dismantling of the Bayonne plant of the International Nickel Company cut down the refined capacity materially. It is significant that while the International Nickel Company smelter capacity in the United States and Canada may be 3,500 tons a month the capacity of its refineries is now only 600 tons a month. The British American Company and the Mond Company each have smelting capacity of 625 tons a month but refining capacity of only 500 to 550 tons a month.

The U. S. Nickel Company is credited with a smelter capacity of 250 tons and refined capacity of 150 tons while by-product plants have refined capacity aggregating 150 tons a month.

It required about four years for the consumers of nickel to absorb the heavy stocks accumulated during the war but these stocks have now been consumed. Stocks of the largest interest at the beginning of this year had been reduced to what might be considered normal. The British American Nickel Corp. is understood to have been treating recently stocks of matte, which it had accumulated some time previously. It is now reported that on May 1st the Ontario smelter of this company resumed operations made necessary by the large sales made early in the year for shipment over 1923.

WORLD'S 1922 GOLD PRODUCTION

According to preliminary estimates of American Gold and Silver Institute, world gold production in 1922 was 14,841,136 ounces, valued at $306,793,000. In 1921 production totaled 15,502,806 ounces and in 1920 16,561,158, compared with record 22,870,000 in 1915.

Of 1922 total United States produced 15.9%, North America 29.3% and Africa 53.3%. Following gives value of output by continents, as well as percentage of world total:

	Value of output	% of total.
North America	$90,043,000	29.3%
U. S. . $49,096,000		
Canada 25,447,000		
Mexico 15,500,000		
South America	11,000,000	3.6
Central America ..	2,000,000	0.7
Europe	600,000	0.2
Australia	20,000,000	6.5
Asia	19,500,000	6.4
Africa	163,650,000	53.3

PLATINUM IN APRIL

Early in April sales of platinum were made at $112.00 followed speedily by an advance to $114.00 to $116.00 an ounce. By April 10th the official price was advanced to $118.00 followed by a reaction in the next ten to fifteen days to $116.00 an ounce. On May 1st the nominal official price remained $116.00 an ounce for retail lots. Actual sales are being made at $114.00 an ounce for refined. Thus the official price is being shaded $2.00 an ounce. Manufacturing jewelers have made purchases within the last day or two at $114.00 an ounce.

Although importations of crude from Colombo and Europe were moderate throughout April, some stocks which had been used as collateral for loans came on to the market and resulted in shading of prices. It is understood that some business was done as low as $104.00 an ounce. With distressed stocks out of the way, the market subsequently was firmer and on May 1st the market was steadier at $108.00 an ounce.

Based upon the official price of $116.00 for refined, No. 12 medium refined would be held at $124.00 and hard at $129.00 but these prices are being shaded about $2.00 a ton, sales of No. 12 medium being reported today at $122.00 an ounce.

Palladium has advanced from $79.00 to $81.00 an ounce in the last month. Iridium has remained firm and today is selling at $250.00 to $255.00 an ounce.

PRODUCTION OF CRUDE PLATINUM IN 1922

Nearly a thousand ounces of platinum, valued at more than $100,000, was produced in the United States not including Alaska in 1922, according to the Interior Department, as shown by information compiled by James M. Hill of the Geological Survey. Placer deposits in California and Oregon yielded in 1922 a total of 929 troy ounces of crude platinum and osmiridium, valued at $101,000. This output compares favorably with that in 1921, which was 977 troy ounces, in view of the unfavorable water conditions that prevailed throughout most of 1922 in the Klamath Mountains of northern California and southwestern Oregon.

In California crude platinum was produced in 1922 in Amador, Butte, Calaveras, Humboldt, Sacramento, Shasta, and Trinity counties, the county which led in production being Shasta County. In all 516 ounces of osmiridium and 360 ounces of platinum were recovered, of which 352 ounces of platinum and 24 ounces of osmiridium were the output of dredges at the base of the Sierras.

In Oregon crude platinum was recovered by placer mines in Coos, Curry, and Josephine counties in 1922, the total output reported to the Survey being 51 ounces of platinum and two ounces of osmiridium.

Steel and Metal DIGEST

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THE BUSINESS SITUATION

Conservatism was by far the most prominent feature of business in May. Trade volume was further curtailed as compared with the two preceding months and the tendency of prices was downward although in some lines the decline in prices was of a negative character. The rise in industrial costs suggested caution to manufacturers and the high prices of commodities that culminated in March or early April threw consumers into a reserved attitude. Developments in May made it clear that the people were not inclined to seek prosperity at the level of prices attained during the semi-boom in the first quarter of the year.

Unbalanced Industry.

It must be apparent to any close student of economic conditions that industrial affairs in this country are still more or less unbalanced. The strong effort made to check inflationary tendencies has borne fruit of a desirable character, in that the reaction from the recent great activity and high prices will be modified in proportion to the check given to the upward swing. In other words, the contraction in trade and the relatively lower prices which are inevitable, possibly within the next year, will not be so marked as they would have been if the inflationary movement had not been retarded.

Intensive Production.

Next to the birth of conservatism probably the intensive production of manufactured commodities was the most prominent element in industry last month. Of course, it is highly desirable that labor be fully employed and that the industry should operate at full capacity of man power and of equipment but wage advances which cripple industry are to be deprecated. There were numerous instances in May of further increases in wage scales paid by consumers of steel products following as a natural result of competition for services of laborers. Some of these increases, however, cannot be maintained.

Steel Industry.

It would seem that events in the steel industry were more than usually typical of developments in industry as a whole. The main common features were record-breaking production and shipments while buying was curtailed. Consumers—who in the first quarter of the year overbought because of a belief that makers could not make deliveries on contract time while burdened with overwhelming obligations—soon realized the significance of unprecedented output by steel mills. As a result pressure for early deliveries ceased. Next followed elimination of premium prices. A third step is now being taken, apparently, which is toward a lower level of prices. For the moment the movement is timid and uncertain and is more evident in pig iron than in steel. It can hardly be expected that a large buying movement for the third quarter of the year be developed under present conditions of full order books.

Cancellations.

Some observers are inclined to make capital of the fact that no important cancellations of orders have been made

and to reason therefrom that consumption will continue heavy, calling for the shipment of all products purchased. Much will depend upon the course of prices. There is no incentive to call for cancellations of contracts while current prices remain considerably above the level at which purchases were made. It is only on a declining market that manufacturers are asked to remit obligations. The downward tendency has begun, however, as a result of resales.

Great Iron Output.

Output of pig iron in May was never so great, being at the rate of 45,750,000 tons a year. The total for the month, as well as the rate of daily output, was unprecedented and on June 1st was at a rate of almost 46,000,000 tons a year. Steel production in May, however, while showing a larger total than in any preceding month in the history of the industry, failed to reach the maximum record daily rate established in April. The failure of the steel companies to increase the daily rate in May was due entirely to the falling off in production by independent companies. The Steel Corporation was the conspicuous exception. Early in May all of the steel companies were utilizing a greater daily percentage of capacity than at the end of the month. It is possible that for a day or two a rate of 50,000,000 tons a year was attained, but the average for the month was less than 48,500,000 tons a year against 49,100,000 tons a year in April. It may be assumed that labor shortage was responsible to some extent at least, for the falling off in steel production in the last few weeks because previously the increased efficiency of smaller forces had permitted a record-breaking output.

Twelve-Hour Day.

Were labor supply easier at the steel plants there can be small doubt that the committee of the American Iron and Steel Institute would have reported favorably on abolishing the 12-hour day in the near future. It is the intention of steel manufacturers to eliminate the 12-hour day or the two-shift system as soon as practical. The popular outcry against the decision of the committee of the Institute not to change practice immediately is based upon ignorance and prejudice and it is probably too much to expect that the public ever will be fully enlightened.

It should be noted that in response to the general purpose of the industry to eliminate the twelve-hour turn, some of the steel companies in 1921 and others in 1922 introduced the three-shift practice when labor was in larger supply. The result, as the report states, was a gradual reduction in the number of men working the long-turn. It is pointed out that today there never was such a small percentage of the steel plant workers employed on long-turns. Only one-fifth of the total number employed work on the two-shift system.

Conditions of Work.

It would probably make small difference to the public and labor agitators to learn that the men working the two-shift system do not work twelve hours consecutively and never did. While they are on duty twelve hours they seldom work more than two hours consecutively and probably not more than six hours in the entire twelve hours during which they are on duty. The attitude of the workers themselves toward the twelve-hour day is favorable and had not the immigration law restricted the class of workers adapted to this particular service more of such men would be available today. In deference to public opinion, however, it is only a question of time when the industry will have abolished the two-shift system. The attitude of the industry is clearly shown in the statement of President Gary of the Institute, made when the investigation was first determined upon. His words were "Let us commence this investigation wtih a determination to find ways and means of getting rid of the twelve-hour day. Much depends upon the attitude of mind in approaching the subject. If we consider only the dfificulties and see only the obstacles, we shall never accomplish anything. If we try to bring about the abolition of the twelve-hour day, there is real reason to hope that we shall be able to do so."

Higher Prices Necessary?

It may be accepted as a foregone conclusion that eventually the two-shift system will depart from the steel industry, but it must be at a time when labor is more plentiful and as a result probably the public may have to pay more for steel, the farmers especially. The latter

probably will disapprove of the higher prices. The farmer today is at a disadvantage as compared with other industrial workers as was graphically shown by a speaker at the National Monetary Association conference this week when viewing inflation and deflation from the farmer's viewpoint. Anything which would further burden the farmer is to be avoided if possible.

Farmers' Position.

The farmer's position is particularly hard today because the prices of his products are largely dependent upon export trade and foreign consumers, especially in Europe, lack the purchasing power to buy American agricultural products to the extent they did before the war. It is pointed out that because of the scarcity of labor—largely the result of severely restricted immigration—men are being attracted from the farms to the industries that have been competing with one another for man power.

Capital in Production.

Under these conditions, it is worthy of remark, that while only one-third of our population today is engaged in agriculture against 90% in the early nineteenth century, the introduction of capital goods into production has made it possible to supply our people with an abundance of agricultural products. It may be that further improvements in labor-saving devices on the farm will make it possible to release more labor from agricultural service.

To some extent also the copper industry is suffering from labor shortage. Especially are the mines in the west short manned during the crop season when miners are attracted to the farms if not to manufacturing industries. Production of copper, however, is fully ample to meet requirements, probably also as a result of the introduction of machine labor-saving devices at copper properties.

Copper Industry.

The copper industry, however, suffers with the farmer in being dependent so largely upon conditions in foreign countries. Exports of copper this year to Europe and especially to Germany have fallen off considerably as compared with the corresponding period last year. To this fact may be attributed to a large extent the downward tendency of prices of copper in the last sixty days. There is some reason to believe, notwithstanding the rejection of the latest German reparations offer by France, that a solution of the German problem will be found in the not distant future by the more direct and vigorous assistance of Great Britain to her allies.

German Reparations.

The American copper industry, of course, will promptly benefit from a settlement of the German reparations question which will involve the withdrawal of France from the Ruhr industrial section. In the meantime copper producers are more dependent upon domestic consumers. The latter have assumed a most conservative attitude in the last month. Since the beginning of June home copper consumers have been a little less reserved but there is small reason to anticipate any departure from the conservatism which consumers of both wrought and unwrought copper have exercised for the last two months. At least no radical change can be expected here until European conditions are more favorable.

Foreign Trade.

The state of our foreign trade is shown in the steady decrease of our exports and increase in imports. In March imports exceeded exports by $57,000,000 and in April by $41,000,000. In the first four months of this year there has been a net balance of imports over exports of about $89,000,000. The reversal of our foreign trade balance is attributed mainly to the recent activity in our domestic business and high prices prevailing. Industrial activity here has caused larger importations of foreign raw material while the low purchasing power of foreign countries has steadily reduced our exports. In the last six months, however, gold prices have been rising abroad and in England are relatively higher than in the United States.

Foreign Exchange.

European exchange rates have recently receded after higher rates had been established. This applies especially to sterling which is higher than a year ago but it still below the level reached last Fall. British Government purchases of dollar exchange for its Washington payments are probably a factor. These payments will require the purchase of one hundred and sixty-one million dollars a year on the British debt in addition to

payments for silver bought under the Pittman act. Gold exports are not imminent but if the trend of our foreign trade continues as at present, gold exports will come eventually. Our adverse foreign trade balance, however, is favorable to the collection of our foreign loans.

Unprecedented Car Loadings.

Under present conditions at home we can well afford to have imports in excess of exports. Although home trade is receding in volume, shipments of various commodities, based upon the great activity in the first three-months of the year, are unprecedentedly high. This is shown in the spectacular increase in railroad car loadings during the week ended May 26th when over a million cars were loaded. It is even predicted that a new maximum record of loadings will be established in the Fall, railroad officials expecting weekly loadings to reach 1,190,000 cars.

Railroad Earnings.

Earnings of Class 1 railroads in April were as remarkable as the car loadings in May. According to the American Railway Association the aggregate net income in April was $38,197,800 which is at an annual rate of return of 6½% on tentative valuations. Valuations today, however, are estimated by trade authorities at very close to $21,000,000,000. It will be recalled that the Interstate Commerce Commission estimate was slightly more than $13,000,000,000 on June 30th, 1907.

In March this year net earnings of the railroads were at the equivalent of 5.96% of the tentative valuation while in April last year the carriers reported net earnings of only $49,979,000, equivalent to 3.99% of the valuation. April this year operating revenues were $522,955,700, an increase of more than 25% compared with the corresponding month last year, while operating expenses were $403,869,000 which was an increase of 20% over April 1922. Notwithstanding the favorable return in April and the prospect of an equally favorable showing in May net earnings of the carriers are still somewhat below the 5¾% return set as a fair income by the Interstate Commerce Commission.

The "Living Wage."

A number of railroads recently have readjusted the pay of their labor forces upward just as have manufacturing industries, but in the building trade there is still more or less controversy and some strikes. In view of the numerous claims that wages should be regulated by living costs, it is refreshing to turn to the statement made by Henry Ford upon the living wage. Mr. Ford is without a peer as an organizer of industry developed by highly efficient methods. While paying highest wage rates, he has achieved the lowest costs of manufacture. His statement should be accepted as of great value. He says, "Good work well managed ought to result in high wages and low living costs. If we attempt to regulate wages on living costs we get nowhere. The cost of living is a result and we cannot expect to keep a result constant, if we keep altering the factors which produce the result. When we try to regulate wages according to the cost of living we are imitating a dog chasing its tail and, anyhow, who is competent to say just what kind of living we shall base the costs on? Let us broaden our view and see what a wage is to the workman—and what it ought to be."

Skill in Production.

Mr. Ford believes also that organized industry which places everyone where he can be most useful, with the resulting large production, is beneficial to all. The Ford automobile is a product of a great "skill put into planning, management and tool-building and the results of that skill are enjoyed by the man who is not skilled." The same methods if introduced judiciously into other industries would bring a wonderful increase in production and it must be remembered that the great problem of the age is to increase production.

Modern Industrial Practice.

Of course, looking back over the last four years it is evident that production —speaking in general terms—has been increased stupendously but there is room for further progress. The achievements already accomplished have been made possible by the round-about method of modern industrial practice, in which employment of capital goods makes possible more and more goods and increased production benefits labor immensely. Even progressive trade union labor leaders today admit this fact and no longer oppose the introduction of labor saving devices. Unfortunately all or-

ganized labor leaders are not so enlightened and they fasten their views upon uninformed Congressmen. As a result Federal if not State expenses are made unduly high and taxes are prevented from being reduced as they should be.

Labor Shortage.

Reverting to current business affairs, it is seen that the tendency again to reduce output of some commodities results from labor shortage and the unbalanced state of industry. There is nothing incompatible between great production and reasonably high wages as shown by the great Ford activities. Wages (as well as other prices) are the result of the operation of the law of supply and demand. Great production on the other hand does tend to lower prices of the product to the benefit of all the people.

Man Power Needed.

The crying need today is for more laborers that production may be increased from which all would gain. The opposition of organized labor to making available more skilled and unskilled workmen, apparently, is based upon the false notion that the wage scale would thereby necessarily suffer, from which there would be no compensating gain. On the contrary there probably would be a reduction in commodity prices to offset any reasonable decrease in wages but the tendency of efficient modern industrial service is to maintain wages at a level which tends to increase the purchasing power of consumers.

It is not surprising under the influence of economic developments in May that a new spirit of conservatism was born in business.

STEEL PRODUCTION IN 1920 AND 1923

Production of steel ingots in the first five months of this year was about 19,700,000 gross tons. In the same months of 1920 production was about 17,400,000 tons.

Comparison between the two years is very much in point for several reasons. Early this year many observers detected a resemblance between basic conditions then and at the same time in 1920. As 1920 turned out very badly, necessitating drastic readjustment and liquidation, nobody wants to see the same thing happen again. Obviously many mistakes in judgment were made in 1920 or things would not have gone so badly, and it seems to be quite a safe guess that anyone who has had brains enough to stay in business until now has been anxious day by day this year to avoid making the mistakes he made in 1920 and also, if possible, not to make other mistakes. Hence it has become a habit to compare 1920 and 1923. Such comparisons should be made not with the object of finding similarity or with the object of finding difference, but with the object of finding facts. We are all prone to adopt a theory and then try to make facts fit. Some are even disposed to adopt theories and attempt to deduce facts from the theories, instead of making observations.

Comparing the first five months of 1920 with the first five months of 1923, ingot production has been 13% greater. In each case mills were striving for maximum output. There was not much difference in the first quarters of the two years, but in 1920 production dropped sharply after April 1st, on account of the "outlaw" rail strike, while this year production increased in April over March and possibly increased a trifle in May over April.

One cannot be certain that in either case the mills would have had the orders on which to make the steel they did if many buyers of steel had not been afraid that the mills would not be able to furnish them the amount of steel they would need. Although the point is not often mentioned, it is a fact that there is this doubt. What we do know is that at the end of 1920 there must have been stocks of steel and of things made from steel, otherwise there would have been more steel made in 1921, for it was impossible to see such a decline in actual ultimate consumption of steel in things made of steel as would be indicated by the steel production statistics.

While the 13% gain in steel production in five months is an important gain, the more striking comparison is made by comparing April and May only of the two years. Comparing the two months, the increase is one-third.

Now, it would be very nice and comfortable to generalize along the line that on June 1, 1920, the steel market was advancing sharply on account of two months of restricted production, and on June 1, 1923, had grown easy on

account of two months of increased production. It would be nice and comfortable but it would be untrue. The market on June 1, 1920, was not markedly an advancing one. It was more than two months later, in August, that notable advances occurred in certain steel products for early deliveries. When at this time one looks over the history of 1920 he finds it was an even more remarkable year than it appeared to be at the time. Besides the restriction in production there was a restriction in shipments, as the mills had large piles of steel on June 1, 1920, awaiting cars, and there were also large tonnages technically in transit but really not moving. It required quite a while for the restriction in deliveries to have much effect on prices. Per contra, no difficulty should be experienced in seeing why the steel situation is an easy one now. It is quite unnecessary to suspect or imagine that there is a decrease in steel consumption now as compared with two months ago. The vital point is the relation between production and consumption, not the relation between consumption now and consumption in the recent past.

THE FUTURE OF CONSTRUCTION WORK

Inasmuch as everyone has been talking about the high cost of building while building is now proceeding at a great pace, the question very naturally arises as to what the future will bring forth.

In commodities the law of supply and demand is supposed to work with considerable accuracy, causing demand to decrease when prices advance too much and to increase when goods are placed on the bargain counter. One would naturally suppose that in construction work the operation of the law would be quicker and more conspicuous. A man may be in the habit of buying one straw hat in May of each year. If the price is high in a given year he may not be deterred. He may feel that the price is rather high, but that it is only for one year and he can stand the extra cost. Next May his hat will cost him less. The case of a building is entirely different. A man does not put up a building each year. The building put up now will be in use one year hence, two years hence, many years hence.

Accordingly one might expect, on theory, that the volume of building would be particularly susceptible to influence from the cost involved. Only a slight increase should operate to decrease the volume of building and any time building cost seems a trifle below normal one would expect the demand to be stimulated.

This theory, however, does not allow for human nature. The buyer of a commodity is a habitual buyer. The builder is not. He does not have much information on which to base comparisons of costs at one time or another, and he is likely to take his cue from what he sees others are doing. The more building there is, the more likely he is to get in the mood himself. Perhaps this is all wrong, but anyone can see that it is what occurs.

The placing of building contracts has been stimulated at various times by predictions or threats that costs are going to increase, and the practical result is that by men acting upon the prediction the way is paved for the increase to occur. What men think will occur is made to occur. Suppose, however, that the word goes around that building costs are going to decrease. The same law acting through human nature will produce a decline. If the decline is slow coming, by the building trades workmen refusing to accept lower wages and the sellers of building material refusing to lower prices, the human mind will have the more time to work and the eventual decline will be the greater, for support to the building market will be the more completely removed.

The foregoing remarks apply to residential building, for it is there that the boom exists. The Department of Commerce presentation shows that floor space of contracts awarded for residential buildings last March were 95% higher than in 1919, taken as base, while in dollars the contracts were 132% higher. This is comparing with 1919, not with pre-war levels, which unfortunately are not recorded in shape for comparison. The case of industrial buildings is entirely different, for they show decreases, comparing with 1919, 40% decrease in floor space and 13% decrease in dollars. The men who determine whether or not industrial building shall be done are a different class of men for, generally speaking, they engaged in construction just as they buy current supplies.

THE OBSERVER'S CORNER

Some remarks were made in this department last month on the varieties of men with respect to their responsiveness to efforts to produce "public sentiment." The attempted classification will not be repeated, but in general there are men too low in intelligence to be amenable to argument, men who have their own axes to grind and men who are moved by their emotions instead of by reason, leaving really only a very few upon whom sound argument on public questions will really influence.

Did you ever reflect upon the fact that nearly all our affairs are controlled by organized minorities? Take a few things that present themselves to your mind and consider the manner in which they were brought about. Various acts of Congress are particularly cases in point.

These affairs of mankind are made by men. Things go as they do because men's minds are as they are.

To get to the heart of the thing, suppose a rejoinder be made to the above claim, that the majority must naturally be right, hence that what is done should be assumed to represent the desire of the majority. The reply is that it this very notion that makes the mischief. If a small organized minority sets out to put certain legislation through and the proposal is a bad one, many people simply conclude it is so bad that it cannot be put through, and if enough do not oppose, through it goes. In respect to such people, the worse it is the more likely it is to go through.

Then, from another angle, reflect on the truth of the old adage that "What is everybody's business is nobody's business." The proposal may be good for another group. If the first group outnumbers the second ten to one then each member of the first group is ten times as much interested one way as each member of the second group is the other way. Each member of the first group works hard while each member of the second group feels that there are nine other people who may as well be left to furnish the opposition.

There is no use taking more words to argue the matter or emphasize it. Men who think at all will admit that organized minorities have been very largely in control. What is the conclusion? There are two points.

First, anyone who wants to be a good citizen at all should recognize as a crucial fact that belonging to the majority is not sufficient, that majorities must organize or they are at the mercy of organized minorities. Perhaps it is true that a great many men do not really want to be good citizens to the extent of stirring themselves, but some of the organized minorities are so extremely minor in point of numbers that for even a small proportion of the remainder to want to be good citizens is enough to settle the organized minority.

Second. Our experience in government by organized minorities provides one of the best arguments against state socialism, whether complete socialism or merely socialism by steps beginning, let us say, with government operation of the railroads or government operation of the coal mines. There are many coal miners but they constitute less than 2% of all those in the United States who are gainfully occupied. The railroad workers are about 4%. Of course the percentages are larger if we compute on the basis of the total number of voters instead of on the basis of those gainfully occupied.

At once these minorities, already organized, would be given the opportunity to seek by legislation higher wages or "better working conditions." That is what they would do. They might not secure all they sought, but they would secure more than they were entitled to. The majority, who would pay the bill, would be unorganized.

Or, conceive the condition of our having complete state socialism. Let us assume figures that will not be far enough to affect the argument, and will add up arithmetically. Suppose there are 40,000,000 workers, whose wages and working conditions are fixed by the government and the government is amenable to influences like it is now. Suppose that there are four crafts, like coal mining or railroading, each having 1,000,000 workers; next that there are eight crafts, each having 500,000 workers, 16 crafts with 250,000 workers each and on down until there are 2,048 crafts

with 1,953 workers each. This series would add up to the 40,000,000.

Can anyone doubt that in the practical working out each one of the million men crafts would get better results out of the government than any of the eight half-million men crafts, or these in turn better results than the quarter-million men crafts, and so on? In each case it would be an organized minority against an unorganized majority, but the smaller the organized minority the less it would get. In all human probability the tendency would be not for the majorities to organize against each organized minority, but for each minority to try to organize better. Then there would be political log-rolling. The 2,048 individual crafts with 1,953 workers each would total 4,000,000 people, and thus be just as big as the four crafts of a million each, and with the 1,024 crafts of 3,906 each would make 8,000,000 altogether, but they would not have organization and could do little log-rolling.

ADVANCE IN MANUFACTURE OF STEEL FOR CASTINGS

In a recent issue of **Valve World**, L. W. Spring, chief metallurgist of the Crane Company, presented an interesting article on the above subject, in which he pointed out the growing importance of steel castings in construction work and in hydraulic, steam and oil engineering.

Automobile and truck manufacturers, as well as the building and railway equipment industries, are making extensive use of steel castings. In the power plant, even for saturated steam and comparatively low temperatures, steel castings are used, and for the higher steam pressures accompanied by the temperatures attendant upon the use of superheated steam their use is almost imperative. Another conspicuous instance is the gasoline industry, where the huge demand for motor fuels has resulted in the high-temperature "cracking" processes involving temperatures of from 700 to 1,000 deg. F. and wide ranges of pressure.

For all these needs material of the highest grade is more necessary than ever before and in the end it is the least expensive. Cast and forged steel flanges, fittings and valves are the materials to be relied upon for such demands. With its great strength and high elastic or "service" limit, cast steel carries good ductility, which means safety under severe shock or uneven bolting and warpage strains. Therefore, according to the author, it is the dependable material where an ample factor of safety under strenuous service is desired.

During the last three years cast steel, manufactured by the "basic" process in a Heroult electric furnace, has shown a great advance in quality. While the old steel was thoroughly good and dependable, it cannot compare with basic electric steel as now made. By the new electric-furnace process the deleterious substances, sulphur and phosphorus, are practically abolished, and besides requiring no air for burning fuel used for melting (as is necessary in all other processes except the crucible and electric furnace, where no fuel comes in contact with the metal) any oxygen that may get into the steel from the materials themselves or through access of air, is removed by the final "deoxidizing" and "desulphurizing" slag cover, which is an essential part of the basic electric steel process.

Not only chemically, with its uniformity of analysis, low phosphorus, low sulphur and oxygen, is the improvement shown, but both the physical properties and serviceability testify to the high quality of basic electric cast steel. The metal is known for its high elastic limit (yield point) which runs proportionately higher in comparison with the tensile strength than the elastic limits of steels manufactured otherwise. Along with this high tensile strength and elastic limit go high "elongation" (stretch) and reduction of area of the test piece when pulled to its breaking point.

It must be recognized, however, that the fact that a steel is "melted" in an electric furnace is not necessarily a criterion that it is quality material. By this Mr. Spring does not imply that good steel cannot be made by other than the basic process, but the electric furnace is used too often simply as a melting pot in which to melt down in the shortest possible time, steel scrap to pour into molds and bear the magic name "electric steel castings." Rightfully, the electric furnace should be used for what it is—an almost perfect device for making the highest grade of cast steel at a reasonable cost and in a reasonable time through application of modern metallurgical knowledge.

SOME OF THE PROBLEMS CONCERNING THE DISTRIBUTION OF SHEET STEEL PRODUCTS

Address of Geo. H. Charles, General Manager of United Alloy Steel Corporation at meeting of National Association of Hardware Manufacturers, Cleveland, Ohio, May, 25-26th, 1923.

Any problem worthy of the consideration of the National Hardware Association of the United States must necessarily be vital to the business of our entire country.

The very large increase in the production of sheet iron and steel during the last ten years makes the subject of this paper a very important one to this association, because approximately fourteen and four-tenths per cent. of the entire tonnage of sheets or about 500,000 tons is distributed by the jobber.

On April 1st, 1923, there were 669 sheet mills in the U. S. with an annual capacity of 4,745,500 tons per annum. According to the statistics of the National Association of Sheet & Tin Plate Manufacturers the total production of sheets in 1922 was 3,312,000 tons, which were distributed in approximately the following manner:

1. Automotive industry	34.5%
2. Jobbers	14.4
3. Electrical manufacturers ...	8.2
4. Roofing	6.1
5. Barrel and keg manufacturers	4.9
6. Refrigerators—range boilers	4.0
7. Stove and range	3.4
8. Car builders	3.1
9. Metal furniture	2.7
10. Building construction	2.5
11. Export	2.2
12. Culvert and flume	2.0
13. Water trough and grain bins	1.9
14. Farm implements	1.2
15. Tack and nail plate	0.2
16. Casket and vault manufactur's	0.2
17. Miscellaneous	8.5

The sheet manufacturers of the United States depend essentially upon the jobbers for the distribution of black and galvanized sheets, roofing, siding, conductor pipe, tin and terne plate, etc., to the tinners, roofers, sheet metal workers and hardware dealers. It is therefore seemly and timely that some of the problems which have confronted both should be studied and discussed.

Two problems of distribution of sheet metal products which should be thoroughly analyzed both from the standpoint of their effect on the stabilization of business and on the ethics of business procedure, are the problem of guaranteeing prices against decline and the sanctity of a contract. If my only purpose in presenting this this paper was to gain popularity, I would not discuss either of these questions. However, they are such vital problems in the distribution of sheet metal products that an exchange of views cannot do any harm, but may be the means of a clearer understanding.

Guaranteeing Prices Against Decline.

So notwithstanding the recent decision of the Federal Trade Commission in regard to the practice of guaranteeing price against decline, I wish to raise the following points:

The practice puts forth a temptation to every buyer to buy without due thought and study of economic conditions and it therefore places a premium on a wilful neglect of the most important duty in buying. It also tempts the purchaser to inflate his orders above his requirements, to speculate on a rising market. It does not tend to stabilize business and forces the manufacturer into a very unfair position with his customers. It also forces many jobbers into an unfair position with their customers and causes them to lose money on stock in their warehouses. In fact it places a premium on not carrying any stock. It is in many cases the cause of very unfair and unjust competition.

If it could be done legally, I would recommend that a joint committee from your association with a committee from the National Association of Sheet & Tin Plate Manufacturers, meet and discuss this problem in an endeavor to reach a common ground which would be fair to both the manufacturer and the jobber.

Sanctity of Contracts

In 1920 there was much discussion regarding the sanctity of a contract and the epidemic of cancelitis that swept over the country. If business is to be stabilized, the practice of pyramiding

orders which obviously causes an inflation of tonnage and prices, must be remedied. The efforts of the National Association of Sheet & Tin Plate Manufacturers to establish a proper regard and legal status to an order or a contract, has not been selfish. The members are firmly convinced that it is the only just equitable way to conduct business and that any effort to inaugurate good business ethics should receive the hearty support of this association. If all the ills arising from the practice of contracting for and placing the same orders for the same tonnage with several mills, when the customer only needs the tonnage placed on one order, one contract, and when he really expects to cancel what he does not need could be properly understood by every buyer who now thinks this practice is good, it would be discontinued at once. It is a serious factor in the stabilization of business. It penalizes the purchaser who never contracts for more than he expects to take out and it encourages speculation. The report and recommendations of a committee of the President's conference on unemployment makes this statement:

"Contracts for purchase of materials should contain definite and substantial financial penalties for cancellation. It is clearly undesirable that contracts should be considered subject to cancellation except under conditions specified in advance, with such penalties as may be fair to both parties. Insistence on this principle and the inclusion in contracts of substantial penalties for cancellation will tend to prevent duplication of orders, to lessen the tendency to place orders far ahead of immediate requirements, and to prevent speculative buying by men who when they order have no intention of completing the purchase if prices drop."

Your association and the National Association of Sheet & Tin Plate Manufacturers, guided and prompted by high ideals, should stand firm for good business ethics at all times. This particular problem which creates a fictitious demand, not only causes serious loss to the mills, but works a very grave hardship on all the purchasers of sheets. Here again co-operative effort can find a way out if there is incentive and the determination on the part of business men to take a stand for wholesome good business ethics.

Jobbers as Distributors.

Jobbers have been accustomed to distributing large quantities of iron and steel roofing, yet in the last decade statistics show that over one million tons per annum of metal roofing have been offset by the sale of prepared roofings. The producers of sheets have been giving this problem very serious thought and it is presented with the hope that you will give it your careful consideration.

Prepared Roofing and Metal Roofing

An investigation shows that the prepared roofings have been used instead of metal roofing, due primarily to a lower cost per square on the prepared roofings than could be made on well galvanized iron or steel roofs, coupled with a more vigorous and intensive campaign on such prepared roofings. The manufacturers of iron and steel roofings have been painfully backward in properly advertising the very great advantages of metal roofing and, to a certain extent, the distributors of this product have not carried a satisfactory stock nor put forth serious effort to increase the sales.

The National Fire Protection Association give statistics which show that fire alone costs the United States 15,000 lives and a loss of $500,000,000 per annum, or $1,000 per minute, 80% of such fires being preventable.

The apparent and distinct superiority of well made galvanized iron and steel roofing in fire resistance, if properly presented to the public, would quickly restore this style of roofing in the mind of every conservative and discriminating buyer.

The further very great advantage of iron and steel roofing when properly grounded with conductor pipe as a protection against the disastrous effects of lightning, if properly explained to the home owners and farmers of the United States, would influence tremendous purchases.

The advance in the art of manufacturing sheets with greatest resistance to corrosion by adding a proper content of copper to the product after reducing the harmful impurities, has answered any and all questions that might arise concerning the durability and long life of metal roofing.

Advertising

My own personal experience in the manufacture and sale of Toncan Metal roofing, which has all the qualities just

mentioned, has proven that judicious advertising in the trade papers daily papers and national magazines will produce large and substantial increase in sales. Many large jobbers who handle this material can testify to the effectiveness of such advertising and to the practicability of manufacturer and distributor co-operating to their mutual advantage.

The possibilities of a co-operative movement on the part of the iron and steel roofing manufacturers and the jobbers to properly advertise and distribute metal roofing are enormous and worthy of your support.

You as a distributor of iron and steel roofing should urge and insist upon the manufacturers properly advertising their product to the ultimate consumer. These manufacturers are depending upon you as distributors for advice, direction and vision. With your influence they would have greater confidence in entering into such a campaign, especially if they knew that you would properly capitalize on their efforts and earnestly merchandise such a campaign to the tinners, sheet metal workers, hardware dealers, etc. and that these in turn would put their shoulder to the wheel and take full advantage of the campaign by carrying ample stocks and supporting the campaign in their local papers and advertising matter.

Such advertising should be coupled with an educational campaign depicting the advantages and the utility arising from the use of sheet iron and steel in the production of various farm products, such as, grain bins, silos, tanks, water troughs, chicken coops, hog pens, fence posts, culverts, granaries, etc., which would greatly increase your sale of flat sheets.

Further opportunity along this line is presented in the distribution of metal lath and metal ceiling, which offer as attractive a proposition to the jobbers as do sheets, roofing, conductor pipe, terne plate, etc., but which for some reason have not been accepted as standard products in their sales efforts.

It remains for the manufacturers of sheets and the jobbers as distributors, to appreciate the splendid opportunity knocking at their door, to take advantage of such opportunity in a co-operative way to increase their sales.

Stabilizing Business

Another problem which I wish to present for your consideration is one which is having universal attention at the present time and that is an effort to stabilize business, to overcome the evil of depression and unemployment. Here again national advertising could be used in a very effective way. In order to conduct a national advertising campaign properly, it would be necessary to compile very complete statistics on production, distribution and consumption. These statistics would show the seasonable demand for all sheet products. They would also show the peaks and valleys in the production of sheets. A study of this data would materially assist any effort to stabilize business in that the demand and the production could be synchronized in an efficient manner by advertising at the proper time and educating the trade regarding the most advantageous time to purchase and also to influence buying movements in certain lines when the demand in other lines is not so intense.

In this manner a well directed campaign would pay for itself in lower cost of production and distribution, also in eliminating the evils of unemployment and the tendency to concentrate the purchases of sheets in certain periods of the year.

The Business Cycle

The business cycle, or the record of the fluctuation of business, demonstrates the need of a very careful consideration of the economic conditions involved which cause steel to be known as prince or pauper.

As Herbert Hoover, with his usual keen business sagacity points the way to clip the top from booms and the depression from slumps, so must business men follow, not only for the good of business, but for the sake and welfare of humanity.

We speak of inflation and deflation as though it was an uncontrollable phenomenon in business. Inflation is to expand abnormally, improperly, imprudently. It seems that inflation is the primary cause of all the trouble, for without it deflation and depression could not be so severe. Therefore, the remedy must be found in the ways and the means to prevent improper, imprudent over-expansion of business.

To say that the business cycle is inevitable is to admit that business men

do not know what causes over-expansion or how it could be retarded. This is not true, for they do know a great deal about the cause and also know something about the method to prevent it, but they lack incentive and the privilege, the legal right to exercise that knowledge in a co-operative way.

Inasmuch as the booms and the slumps affect all lines of business, it is perfectly obvious that no individual, no corporation no single business association, can regulate the extremes of business yet many men, many associations, working collectively, could do so.

To stabilize business, certain factors must be controlled, must be mastered, if any results are to be obtained, but this cannot occur until business men are permitted and encouraged to get together to study and plan constructive movements to avoid the evil, instead of being persecuted for attempting to do so.

Trade Associations

The need for such closer co-operation, for complete statistics and the sound information trade associations can gather, is apparent to every business man present. Therefore, the governmental agencies must make a marked distinction between association of business men co-operating earnestly and striving to accomplish this constructive work, and those very few associations which seek only unjust, unreasonable restraint of trade. The public, the government and the laws must foster greater trade association activities for their own protection if stabilization of business is to be accomplished. The laws which were drafted some time ago for the protection of the public should be clarified and revamped to meet this situation. There should be some governmental agency that can and will decipher and interpret them so that business can be freed from the shackles of ignorance of their meaning. In the light of present knowledge these laws could be redrafted to protect the public better than the present laws and at the same time permit a restraint of trade, which would prevent over-expansion, inflation and at the same time restrict ruinous cut-throat competition with all its attendant misery of body, mind and soul, in unemployment, in hunger, in tremendous losses.

The May 1st issue of the National Bureau of Economic Research, Incorporated, states that the depression of 1921 cost six billion dollars. From this it would appear that what we need most in our laws is less knowledge and more wisdom—a true appreciation of the saying that knowledge is proud that it has learned so much, wisdom is humble that it knows no more. For any law that would stand in the way of business men co-operating 100% to avoid such a tremendous loss, is not a wise law.

The compilation of statistics of production, stocks, distribution, costs, labor supply, crops and their prices, coupled with legal means of interpreting such statistics and crystallizing that interpretation into legalized action to prevent inflation or restrict depression, will do as much as anything else to clip off the tops of booms and the depression from slumps. Such work can and will be done by your association and others if they devote their united brain power to this worthy purpose; if they determine to thoroughly understand the cause and to honestly and fearlessly apply the remedy of restraining expansion and in this manner overcome depression.

There are many other problems in the distribution of sheets which we have not time to discuss. Those which I have touched upon are vital and they are submitted in the spirit of friendliness with the earnest plea for your co-operation with the sheet manufacturers in solving them.

MAY EQUIPMENT ORDERS SMALL

Domestic railroads in May, according to Railway Age, ordered only 90 locomotives, 150 freight cars and 99 passenger cars compared with 150 locomotives, 9,744 freight cars and 179 passenger cars in April. May orders which were the smallest for the year to date bring total purchases for 1923 to 1,598 locomotives, 65,699 freight cars and 1,250 passenger cars. Four locomotives were bought.

Further decline in railroad equipment purchases in May is attributed to fact that in most instances deliveries on new business cannot be obtained before the first of the year. Prices also following the advances of April 1st are thought by purchasers to be above the levels at which heavy additional commitments would be attractive.

TOPICAL TALKS ON IRON

CXXI - Semicentennial in Tin Plate

The writer of these Talks recently received a letter from his old friend W. C. Cronemeyer, reminding him that this year marks the semicentennial of the first manufacture of tin plate in the United States. Mr. Cronemeyer's home is in McKeesport, Pa., but he has been spending much of the time lately at Berkeley Springs, W. Va.

It was in 1873 that the first efforts were made to manufacture tin plate in the United States. In that year tin plate was made by Rogers & Burchfield, Leechburg, Pa., United States Iron & Tin Plate Company, Demmler, Pa., and American Tin Plate Company, Wellsville, O. In his letter Mr. Cronemeyer merely mentions these three cases, without details, and he avoids the old controversy as to which was really "the first." As to documentary evidence, a number of years ago the writer of these Talks picked up at a second hand book shop (for 70 cents) the paper bound, 106-page "The Iron Works of the United States, American Iron and Steel Association," copyrighted 1874 by James M. Swank. This gives the Iron City Works at Apollo, Pa., and Siberian Iron Works, Leechburgh, Pa., of Rogers & Burchfield, with six trains of rolls each, and product "sheet iron and charcoal terne plates, annual capacity, 6,000 net tons; average make, 5,500 tons." An interesting point on the side is that the following is said of the Leechburgh plant: "This mill is run with gas for fuel from a well 1,200 feet deep, furnishing all the fuel for puddling, heating and making steam, not one bushel of coal having been used there for the past six months."

This directory also gives the United States Iron & Tin Plate Company, describing the works as "built in 1873-4; four double puddling furnaces and four heating furnaces, three trains of rolls and one hammer; product, tin plate and all kinds of sheet iron; annual capacity, 8,000 net tons."

The directory does not, however, name the American Tin Plate Company or any works at Wellsville, O. However, the Tin Plate Supplement of the American Manufacturer and Iron World, published February 19, 1892, says: "The first works were built at Wellsville, O., and put in operation early in 1873.... The plates turned out at Wellsville were excellent." The natural presumption is that the works did not roll and hence would not appear in the Directory from which citations have just been made. It may be, too, that Rogers & Burchfield were the first to make terne plate from their own sheets, and the Demmler works the first to make tin plate from their own sheets.

In an article on the manufacture of tin plate contributed to an architectural paper and reviewed in "Tin and Terne" of August 25, 1895, Mr. Cronemeyer noted: "About the year 1868 the Cambria Iron Company, of Johnstown, Pa., sent an experienced metallurgist and iron mill worker to Europe to learn the process of making tin plates, and shortly afterwards James Park, Jr., of Pittsburgh, sent another man for the same purpose. After visiting several of the tin plate works in England and Wales, France and Germany, these gentlemen returned and reported that, while this country possessed facilities equal and in some respects superior to any other in the world, it would be impossible to pay the wages ruling in this country and compete with European countries without adequate protection by the United States Goverrment."

The accepted version is that afterwards the price of tin plate rose so that it was thought the industry could be established in the United States without additional tariff protection, the works mentioned being accordingly set up, but that when the manufacture began the Welsh makers, in conspiracy with the New York importers, destroyed the industry by rapidly reducing prices. This sounded very good in the arguments made before Congress whereby the McKinley duty was enacted in 1890, but a little study would have shown that practically all commodity prices advanced sharply up to 1872 and then tumbled in subsequent years. The industrial depression of 1873-78 was not confined to the United States. Burton's "Crises and Depressions," an accepted authority, says: "The depression following the crisis of 1873 in the United States reached its lowest point in the year 1878, and in Great Britain—where the

depression became severe later—in the year 1879."

As we are done with such tariff arguments it is not in bad form to suggest that the destruction of the American tin plate industry of 1873 was not wholly due to a dark plot between the Welsh tin plate manufacturers and the New York importers. At any rate, the industry was destroyed, and was only occasionally that any tin plate was made in the United States until the establishment of the present industry, which was due to the McKinley tariff. The McKinley tariff law of October 1, 1890, provided, with certain qualifications, a duty of 2.2 cents a pound, effective July 1, 1891. This gave the country opportunity to load up on tin plate, which it did. The custom house was kept open to midnight of June 30, 1891, on account of tin plate.

An interesting story in the old days, which the writer must quote chiefly from memory, is that of "Secretary Fessenden's comma decision." This was of the tariff of 1864. The law as printed, said: "On tin plates, and iron galvanized, or coated with any metal by electric batteries or otherwise, two cents and a half per pound." This would mean, obviously, that tin plate would take 2½ cents a pound duty, and not the 15% it would take if excluded from this section. The Secretary of the Treasury, however, ruled that a mistake had been made, probably by the transcribing clerk, and that the comma ought not to be after "tin plates" but after "iron" whereby the reading would be: "On tin plates and iron, galvanized or coated" etc., whereupon the tin plates would have to be coated with something else before they would be entitled to the 2½ cent duty. The proponents of the tin plate industry insisted that Mr. Fessenden was wrong, because tin plate was not so coated and could not be. In substance, they called him an ignoramus. No doubt he was, in a way, but in making his decision he stated that he was competent to speak on the subject on account of the work he had done with the Congressional committee in writing the bill, and knew that Congress had not intended to put the 2½-cent duty on tin plate unless it was so coated additionally.

At this late date it seems well to admit that while the comma decision made a good tariff argument the probability is that Congress did not intend to put the duty on tin plate. Congress probably knew nothing about manufacturing processes, but did know that tin plate was a common article and quite possibly had no thought, as Secretary Fessenden contended, of putting the higher duty on it in its common form.

The comma decision, it will be understood, was made long before the 1873 tin plate industry, which was started on the idea that with the high price then ruling for Welsh tin plate it would be possible to make tin plate in the United States even with only a 15% duty.

An interesting point is that the tariff of October 4, 1913, in effect until the Fordney-McCumber tariff of September 22, 1922, was also 15%. That is the difference between running an industry after it has been established and getting an industry established. There are few if any better illustrations of the immense benefits of a protective tariff to nourish infant industries than the American tin plate industry, now nearly a quarter century old and frequently able to obtain a higher price on its exports than it does on the tin plate sold to domestic consumers.

New Thoughts on Electric Furnaces—The electric furnace has "made good" in the production of steel in competition with other methods, but recent investigations indicate that its full possibilities in the production of alloys have not been realized. Apparently there is ground for assuming that the electromagnetic effect of an electric current has a decided bearing on the metallurgical processes which occur during refining. How much the reaction of the field on the atomic constituents of the furnace charge can be utilized is a subject for further investigation. But if there is a possibility of obtaining new or better alloys by subjecting the charge to the influence of a strong field during cooling, a remarkable opportunity exists for further furnace applications. Experimental evidence indicates that the electric furnace does things which cannot be explained on a thermal basis. For example, forced circulation by using the magnetic field has made the induction furnace a commercial possibility, and in many other applications the mixing of the constituents of the charge is best explained by the field effect on the atomic structures.—**Electrical World.**

TIRING OUT THE METALS

To determine how long it takes to "tire" a metal to the point where it gives way under repeated strains or shocks the Engineering Foundation in collaboration with the National Research Council, the Copper and Brass Research Association, the University of Illinois, the General Electric Company, Western Electric Company and other corporations, has undertaken a comprehensive program of research to establish the endurance limits or so-called "fatigue" of copper, brass, bronze, and other metals.

Everybody has used the simple process of breaking a piece of wire, perhaps a hairpin by bending it back and forth until it snapped, and has found that some wire has to be bent longer than others. The breaking of the wire was the result of "fatigue"; when the wire snapped it had reached its endurance limit.

This is a simple example of fatigue failure, a subject which assumes great importance in the operation of machinery, in which such objects as shaftings, axles, springs, bolts, rods, ties and structural parts made of metal are subjected to repeated loads, shocks and stresses.

Fatigue characteristics depend on the composition of the metal or alloy, the heat treatment to which it is subjected in manufacture, the structure of the metal, impurities present, even the shape of the object. It will thus be seen that the variety of conditions where fatigue is a factor is almost endless.

Engineering science has an almost inexhaustible fund of fact with regard to the other physical properties of the metals, including tensile strength, compressive strength, ductility and hardness. There exists, however, this gap in regard to fatigue. The recognition of its vast importance is in line with the great engineering progress of the times.

A fatigue failure of metal is apt occur suddenly. The metal snaps as though it were brittle, and in many cases at the point of fracture appears to have become crystalline. This crystalline appearance led to the old theory that under repeated stress metal crystallized, but this theory is now known to be unfounded. As a matter of fact, under the microscope all metals used for structures and machinery appear crystalline, Stresses produce no apparent change in the general structure of the metal, but repeated stresses seem to produce a gradual breaking down of the crystalline structure.

To accurately determine the facts which govern the strength of the many metals and alloys employed under widely varying conditions of service is a huge task, calling for exhaustive research, as will be apparent from the fact that in some metals it becomes necessary to carry the repetitions of stress beyond one hundred million reversals (bend the hairpin back and forth, if you will) before the actual endurance limit can be satisfactorily established.

For three-quarters of a century the need for accurate information on this subject has been apparent, but the costly character of the undertaking was long a deterrent. Finally, during the World War the question of strength of aeroplane parts under repeated stress became of such prime importance that a full investigation of the endurance limits of commercial steels was begun.

It is now planned to carry forward for the first time a comprehensive research into the endurance limits of copper, brass, bronze and other nonferrous metals and alloys. The Copper and Brass Research Association will be represented in this undertaking by Captain Harry George, Metallurgist, Chase Metal Works; W. R. Webster, Vice-President, Bridgeport Brass Company, and William B. Price, Chief Chemist and Metallurgist of the Scovill Manufacturng Company.

The work will be supervised by an advisory committee of specialists connected with the National Research Council. Dr. H. F. Moore, Professor of Engineering Materials, Materials Testing Laboratory of the University of Illinois, will be in immediate charge of the experiments, which will be conducted at Urbana, Ill. The Engineering Foundation, of which Alfred D. Flinn is director, has provided special equipment and funds. —**American Industries.**

TECHNICAL AND COMMERCIAL ABSTRACTS

Prominent Woman Speaks for Open Shop—Among the several articles written by forward movement people of the country for **American Industries** on the open shop was the following by Mrs. Margaret C. Robinson, president of the Massachusetts Public School Interests League: "I am in favor of the open shop because the principle behind it is in keeping with the ideal of freedom upon which our government was founded. Americans have so long enjoyed so great a degree of liberty that they take it for granted, like the air they breathe, and in consequence are ceasing to appreciate it at its true worth. In this country the movement to destroy the rights of the states, and to put the control of education, maternity, child labor, etc., into the hands of the bureaucrats at Washington, politically appointed, over whom the people have no control, is a tremendous menace to the liberty of American citizens. Because I should like to see the workingman hold fast to his freedom to dispose of his labor as he sees fit, I am not in sympathy with the effort of the closed shop policy to force him to join a labor union against his will."

IRON AND STEEL

Steel Floor Joists Tests—Tests of two steel floor panels such as would be used in a building were recently carried out at the plant of the Dominion Bridge Company, Montreal, for the steel fabricators' section of the Canadian Manufacturers' Association, to determine the effect of the concrete floor slab and beam encasement in reducing the stresses in the steel and thereby increasing the carrying capacity of the floor. The conclusion was reached that the concrete reduces the steel stress by about 36% under dead load and full live load. With a live-load 50% above normal the steel stress was 20% lower than under full live-load in a panel without the strengthening action of the concrete, and even twice the normal live-load resulted in a lower flange stress in the steel beams than was produced by normal live-load in the panel without concrete encasement. In these comparisons the dead-load was the same in both cases, the load on the panels without encasement being made equal to the total dead and live load on the concrete-encased panels. Thus the results indicate what proportion of the strength of the finished panel is ignored when the strength calculation is based on the resistance of the steel beams alone, as is now current practice. — **Engineering News-Record.**

Unusual Features in New Wire Mill—A number of new and interesting developments in the rod-rolling and wire-drawing industry are encountered in the new mills of the Whitaker-Glessner Company, at Portsmouth, O., which are now in operation. These include, in the rod mill, a near return in principle to the original type of Morgan continuous mill, employment of seventeen passes instead of the conventional sixteen, and the division of the four finishing passes into two separate roll trains of four strands each, allowing individual treatment and adjustment of each strand. Another radical development—and the first to be installed in any mill—is a coiling and conveying system, automatically controlled, which moves intermittently instead of continuously, a conveyor serving each reel. In the wire-drawing room the greatest advances made in wire-drawing equipment in years are noted, including individual motor-driven wire blocks which give a slow start and variable speed instead of an abrupt start and fixed speed; also continuous drawing machines, in which the bugbear of "slippage" is entirely eliminated.—**Iron Age.**

New Canadian Steel Plant—The Dominion Alloy Steel Corporation, Sarnia, Ont., recently organized with a capital of $15,000,000 has preliminary plans in progress for the construction of a new steel works on the Indian reservation in that section. The plant will consist of a number of mills, with power house, and is estimated to cost in excess of $1,500,000. It is expected to commence work in the near future. The new company is headed by Francis P. Dawson and William A. Watson. G. A. Simpson, Hamilton, Ont., at one time connected with the Steel Company of Canada, is interested in the new organization.—**The Blast Furnace and Steel Plant.**

How Steel Helped Win the War—The story of how the World War was won with the help of the great industries of America, particularly iron and steel, is told in a book just issued, of which the author is Grosvenor B. Clarkson, who was a director of the United States Council of National Defense, on "Industrial America in the World War." In a picturesque chapter the author recites how "business-as-usual" met its first setback in the steel problem. He tells how for months the War Industries Board, the Fuel Administration, the Railway Administration and captains of the steel industry sought the solution to the problem of meeting an unlimited demand with a limited supply. Mr. Clarkson describes a meeting of the War Industries Board at a time of great uncertainty, with Robert S. Lovett, chairman of the Union Pacific Railroad, presiding, and Judge E. H. Gary leading the representatives of the steel industry. Mr. Clarkson gives a complete resume of the evolution of industrial mobolization under the direction of the Council of National Defense. Nitrate, the base of nearly every high explosive, was a cardinal feature for the American industrial soldiers, Mr. Clarkson recalls, declaring that the destruction of a single nitrate carrier from Chile was a greater loss than the sinking of a large battleship.—**Iron Age.**

Bright Steel Bars—Important improvements in the production of bright steel bars such as are used for line shafting and numerous other purposes in engineering have been introduced by a British firm. Hitherto the bright surface has been obtained by the use of acids—thus tending to pit the surface of the metal. In the new process a special machine is used which turns the bars at an unusually high speed and with extraordinary accuracy. The superior brightness and regularity of surface of the bars is due solely to the machine, and is achieved without the use of acids. —**Canadian Machinery.**

Cement Industry Consumes Much Steel—Such heavy buyers of iron and steel as the railroads, the building contractors and the automobile makers take a large share of the total production, but more of the output than most persons realize goes into the various manufacturing fields. The Portland cement industry is an example of one which operates much heavy equipment and uses iron and steel products in various ways. Few steel manufacturers realize that the cement mills provided a market for 46,000 miles of wire last year, for use in such a minor operation as tieing cloth sacks filled with cement. An average of only seven inches a sack is needed, yet the total is astonishing. As a special kind of wire is necessary, various wire makers cater to this business. The bulk of the demand for iron and steel products in the cement industry is for heavy machinery and repair parts, but there are a number of unusual requirements to be met.—**Iron Trade Review.**

Austria's Steel Industry.—An improvement in the position of Austria's iron and steel industry, particularly in the rolling branch, has been brought about by increased orders from Germany. It is stated that present orders are sufficient to keep the industry operating at reduced capacity for ten weeks. Should they continue it is probable that the Alpine Montangesellschaft will resume operations in the Zoltweg plant, which has been closed down for some time. Some difficulty is caused in sales to German buyers by their demands for price quotations in English pounds, forcing Austrian sellers to assume exchange risks.—**American Industries.**

Charcoal Iron Outlook is Encouraging—Net profits of the Charcoal Iron Company of America for the last six months of 1922 amounted to $24,075, compared with a loss of $696,317 for the preceding six months. During the first half of the year only the Manistique plant and the Yale mine of the company were in operation, while in the final six months all of the company's properties were active. Sales during the first half amounted to $942,598, and during the last six months they were $2,126,710. The first quarter of 1923 has shown net profits of $156,260. The financial position of the company has shown an improvement over one year ago, due to the material increase in working capital. —**Iron Trade Review.**

THE FOUNDRY

Greater Things for the Foundry—"Any organization which in three successive annual gatherings has produced a technical program and an exhibition of

equipment with a combined drawing power of 3,000 to 4,000 participants has come to a position of leadership that has large possibilities," says the **Iron Age.** "Such is the record of the American Foundrymen's Association, which held its 1923 meeting in Cleveland, O. Let it be granted that the high place attained by this thriving society is due in no small measure to the expansion of the American foundry industry itself. Beyond all this is the fact that leaders in the industry have been alive to the benfits of co-operation for the working out of their technical problems. A comparison of the subjects discussed and the products exhibited with some of the efforts of ten or fifteen years ago leaves a distinct impression of the magnitude of the present day industry and of the strides that have been made."

A Problem in Foundry Practice—"In late years the sand problem in foundry practice has been much to the front," says the **Iron Age.** "At the Cleveland convention of the foundrymen the two sessions on sand drew the largest attendance and brought out the liveliest discussions. Proper foundry sand is almost as important as the right metal. In the past sand for steel, gray iron or nonferrous practice has been too often selected by crude methods. The best sands, as a result, are being exhausted or are becoming more and more expensive. It is vital, therefore, that new sands should measure up to certain scientifically formulated tests, and that even synthetic sands should be developed. Just as today each melt is carefully compounded and tested, resulting in a better and cheaper metal, so in sand the application of similar principles will result in better sands, better castings and lower costs."

FUEL

Fuels and Furnaces—This is the title of a new publication to be published every month in Pittsburgh by the owners of **The Blast Furnace and Steel Plant,** and made its initial appearance in May. In its announcement of what the new magazine will cover it says: "We will deal with the heat treatment of metal, but not with the strictly metallurgical problems as expressed in changes from one form of iron to another, or in microphotographs. We are concerned only with the effects of furnace design, furnace operation and proper use of fuel or electrical energy upon the finished products. In other words, let the metallurgist describe a certain heating and cooling cycle. We do not investigate why he does so, but are interested in the means of carrying it out successfully and efficiently." One of the departments of the magazine is devoted to abstracts on fuels and furnaces and kindred subjects.

Coal Information—The Federal Coal Commission's invitation for information has evidently been taken advantage of by both sides in the controversy in the coal industry. Smoke screens have been loosed by eminent counselors, and there is apprehension that the constructive suggestions which each factor in the industry is pledged to bring forward will be lost in the cloud of smoke created for the benefit of the gallery. If the two sides of the industry have no suggestions, and if they can offer no solution for the existing intolerable relationship, it is certain that the Commission would welcome a frank acknowledgment to that effect. In such an impasse the government, as a representative of the public, will have to try its hand in an effort to bring about a better functioning of the industry. The coal industry is one in which the public is vitally interested, and there must come an end to trying to put the other fellow in the hole. Instead, we must have peace and industry.—**Power.**

Production of British and American Coal—The elimination of the Ruhr coal from European markets is causing an added demand of more than 2,000,000 tons of British coal per month for Continental consumption, and in consequence the price of coal is rising, and while British loss of production due to Easter holidays is significant, the gain in production is still steadily increasing. For the week ended April 14th 5,776,000 tons were mined, the largest weekly output in the past four years. During February France imported 1,375,000 tons of British coal, Italy 675,000 tons, Germany 1,000,000 tons, and Belgium 425,000 tons. In March France and Germany each imported 1,800,000 tons, or a combined excess of 1,750,000 tons above the 1922 monthly average, according to government reports. While the situation in

the Sarre basin is somewhat improved by the return of some of the strikers to work, production is still far below normal. It is apparent that as long as the Ruhr deadlock continues Western Europe is facing a probable net shortage of coal, which provides an opportunity for shipments from the United States. In America the total output of coal for the week ended April 21st was estimated at 2,065,000 net tons of anthracite and 10,244,000 of soft coal, there being a decrease in the weekly output from the preceding week in soft coal of 157,000 tons.—**Power.**

RAILROADING

Railroad Expenditures—The sum of $1,540,000,000 is a great deal of money. That is the amount the railroads will have spent in two years in improving American railroad service by the end of this year. About the only railroad figure which looks anything like it is the $1,800,000,000 deficit incurred as the result of two years' government operation. That this sum will be spent was announced following a joint meeting of the American Railway Association and the Association of Railway Executives recently in New York. A study of the plans of the individual railroads of the country made by the American Railway Association, which serves as a clearing house of information for all matters affecting railroad transportation, showed that the needs of the individual railroads to adequately meet the country's needs for railroad transportation called for a collective expenditure of $1,540,000,000. About $440,000,000 of this sum was spent in 1922; the balance will be used this year.—**American Industries.**

Helping to Improve Car Situation—There are three ways in which engineers and contractors can help the American Railway Association in its program to maintain the supply of cars. Briefly they are (1) Anticipate your requirements for bulk material and heavy equipment and place your orders early so that every ton of material that can be moved before Fall will be. (2) Release your cars promptly; don't wait until the free time is up. (3) When loading material or equipment plan the loading so that each car will have its full capacity and have everything ready for loading when the cars are placed.—**Engineering News-Record.**

Lehigh Railroad Orders Locomotives—The Lehigh Valley Railroad has ordered forty freight locomotives from the American Locomotive Company, and will shortly place an order for ten passenger engines, it was announced recently by President E. E. Loomis, of that road. The new freight engines will be of the Mikado type (four driving wheels), equipped with automatic stokers and boosters. The passenger engines will be of the Pacific type (three driving wheels), and also will have the stokers and booster equipment ordered for the freight locomotives. Boosters on passenger engines are expected, in addition to furnishing greater power in starting trains, to eliminate the unpleasant jerking which comes with the use of heavy steel passenger cars.—**American Industries.**

Germans Hasten Electrification—Unqualified public and professional interest is centered on the German government's present efforts to circumvent the coal shortage by the electrification of all state railways, says United States Consul B. S. Hayen, Leipzig, in a report to the Department of Commerce. By demonstrating the superiority in service and economic efficiency of electricity over steam, it is hoped to offset the handicap to German railway transportation resulting from the occupation of the Ruhr coal fields and the deliveries previously made under the Versailles Treaty. Not only railways, but factories, will be compelled to use electric power. Lack of coal has forced the German State Railway Administration to withdraw a large number of trains. Even now the remaining trains run principally on imported English bituminous coal. Leipzig is already the terminus of several electrified lines. **Electrical World.**

Threat of Prosperity—Most people would feel small apprehension if prosperity and good business were held over them as a threat. And yet there are some to whom good times are a very real danger. Prominent among them are the railroad executives. Just why railroad men should worry over impending prosperity is not hard to see. They are seriously short of rolling stock and motive power, and too much of what they have is on the "sick list." They have placed large orders for all kinds of road equipment, but as they have all done

so at the same time, they have pretty well swamped the builders, and will have to await their turn on deliveries. Some shops are booked full for two years. Putting off the purchase of new equipment until so late in the game is certainly poor business, but most of the railroads have had no other choice. Until their incomes exceeded their fixed charges there was little chance of finding the money for locomotives. And now they will have to pay more for what they get than would have been the case had they been able to order a year ago, when the shops were not busy. —**American Machinist.**

FOREIGN TRADE

Commerce Coming Back to the Mississippi—"At the close of the Foreign Trade Convention, early in May, the new Inner Harbor-Navigation canal at New Orleans was formally opened," says **The Blast Furnace and Steel Plant.** "This canal connects the Mississippi river with Lake Pontchartrain, and transforms great tracts of interior lands into waterfront property, suitable for purposes of commerce and industry. Commerce is coming back to the Mississippi and its subsidiaries. The competition of the railroads that stripped the river of its old steamboats is rapidly being turned into co-operation, even to the extent of through bills of lading, sharing the charges on through shipments, and such other mutual aids as are practiced among railroads. At such ports as New Orleans, where the $20,000,000 canal was opened, modern terminals will provide direct connection between river barges and railroads, as at Hamburg and Bremen, Germany's famous 'free ports.' Electric cranes, moving platforms, trucks on skillfully built ramps, and all the other thousand and one modern devices for moving and handling freight, have been erected by the leading producers along the Monongahela, Ohio and Mississippi rivers. Last year the Barge Line handled 650,000 tons of freight, against a potential freight-carrying power of the river which is estimated at 150,000,000 tons a year. There are 55 barges in operation and eleven towboats. The comparative development of waterways in the United States and Europe may be seen by these striking figures: The 650,000 tons carried by the Federal Barge Line represented just one eighteenth of the volume of commerce carried past the Netherlands-German frontier of the Rhine the last year before the World war."

Germany Fears Seizure of Steel—"Within the past two weeks a heavy tonnage of Ruhr iron and steel has been sold quietly to American, British and Dutch merchants, subject to delivery when once it becomes possible to forward export shipments," says the **Iron Trade Review.** "The American Steel Export Company, New York, is reported to have purchased fairly large tonnages Some of this steel represents stocks already accumulated at the mills; in other cases it represents future rolling. Mainly these sales of steel are covered by steel already in existence but which cannot be moved at present. The Germans have sold it at attractive prices well under current world-market levels. Payment, it is understood, will not be required until after delivery. The titles to the steel have been transferred to the foreign purchasers, one of the chief purposes of these transactions to forestall the possibility of seizure of the accumulations by the French authorities. The German producers in the Ruhr are becoming afraid that the French may seize the stocks of finished steel which they are now accumulating. Accordingly the plan of offering it to foreigners subject to future delivery and payment at extremely attractive prices was hit upon. Gradually, however, the Germans will be obliged to give up producing for stock either through financial distress or through shortage of raw materials."

Asiatic Markets for Machinery—"Asia is rapidly developing in importance as a market for American machinery, having absorbed $242,000,000 worth of such equipment in the past four years," says **Canadian Machinery.** "These figures exclude agricultural implements, adding machines, lawn mowers, etc., and include only industrial, such as factory, mining, railway and construction equipment. A report recently issued by the Department of Commerce at Washington should be of immense value to manufacturers who export, as careful analysis is made of conditions in each of these Asiatic countries, with regard to the various kinds of machinery in demand, the sources from which it has been supplied, and the ways in which Canadian manufacturers can secure a better participaiton."

Trade Results from Investment—"Trade does follow the investment, declared Director Klein, of the Bureau of Foreign Commerce, pointing out that the truth of this axiom is illustrated by the heavy export of American machinery to Chile, Peru and Bolivia, where American companies are in operation. Dr. Klein says that in forecasting our Latin American trade the importance of these financial transactions must be given special consideration, for they now amount to from $2,500,000,000 to $3,000,000,000. After the armistice, as a natural consequence of its newly acquired position as a creditor nation, the United States took the place of Great Britain, France and other European countries as the chief market for Latin American loans. These flotations reached their height in the first half of last year, when a total of about $150,000,000 was issued. — **The Blast Furnace and Steel Plant.**

Watch for Japanese Orders—The drought during the past season has made it clear to the new hydro-electric companies in Japan that they must install steam auxiliaries. It is expected that the Japanese will be in the market extensively for steam-plant equipment. The demand for power also is increasing to the point where there is a much greater demand for carrying loads through the year. The Japanese rivers are short and the opportunities for storage are few.—**Power.**

MISCELLANEOUS

Magnet Wire Demands Increasing—"Producers of enameled wire report vigorous activity," says the **Electrical World.** "The automotive industry is a large buyer, and the radio manufacturer is also keenly interested in high-grade material. The variety of demands for magnet wire, both enameled and non-enameled, increases almost weekly, and in representative plants production has to be upon a practically continuous basis to satisfy current requirements. Raw material costs are stiffening at this time, and prices are relatively unstable. The higher quality material tends to sell upon its merits, however, and builders of motor cars and other products who exercise discrimination in the selection of their material are contributing to the stabilization of the market when they purchase wire in mass or in coil form on the primary basis of quality. This has no direct appeal to some purchasing agents, apparently, but the preparation now given high-grade wire for use in automobile service and other important applications warrants thorough study of the material and more appreciation of processing requirements on the part of users."

The Factor of Sales Service — Firm prices and a tendency toward longer deliveries mark the industrial truck situation, but as yet it is not difficult to meet reasonable requirements with satisfactory promptness. In this class of work 100% service between the factory and the field representative has an immediate bearing upon the success of sales efforts. Delays in furnishing quotations and information to prospective buyers are injurious because of the detailed investigations which must precede contract awards in the great majority of cases. Poor mail service has hampered this business not a little in the past Winter, but despite various handicaps sales have been made in increasing numbers, and the outlook for a good year is excellent. — **Electrical World.**

Selling Machines in Unusual Places—Most of us realize that machine tools are at the foundation of all modern industry, and yet we are very apt to consider only jobs which make machinery of some kind or handle jobbing work, as possible buyers of machine tools. Machine tool builders and dealers have not, for the most part, learned what a salesman of a city on the Pacific coast has discovered for himself. "If I depended on the regular machine shops as customers for the machines I sell, I'd have sold mighty few this past year," he said. Few machine shops had been buying, because few were using all they had or had money enough to buy new ones. Acting on this basis, he started to hunt up other lines, and as a result had a very fair year's business. Hotels, laundries, candy factories, garages, mining and logging camps, all contributed their quota to his list of sales, and his list of prospects is by no means exhausted. Production managers naturally like to see orders in quantities so as to keep the machines all in operation on regular schedules. But, as many builders know to their sorrow, it is much better to have orders for single machines

(Continued on page 292.)

COMPARISON OF METAL PRICES

	Range for 1921.		Range for 1922.		Range for 1923.		Closing May 31,
Pig Iron.	High.	Low.	High.	Low.	High.	Low.	1923.
Bessemer, valley	32.00	20.00	33.50	19.00	31.00	27.50	29.00
Basic, valley	30.00	18.00	30.50	17.75	31.00	25.00	27.50
No. 2 foundry, valley ...	33.00	19.50	35.50	18.75	31.00	27.00	29.00
No. 2X fdy. Philadelphia	33.79	19.84	34.76	21.34	33.16	28.76	31.26
No. 2 foundry, Cleveland	33.56	20.56	35.50	19.56	32.50	27.50	30.77
No. 2X foundry, Buffalo .	31.25	19.00	34.25	19.50	30.25	26.75	29.25
No. 2 foundry, Chicago ..	33.00	18.00	33.00	18.50	32.61	29.11	32.61
No. 2 Southern, Birm. ...	34.00	16.50	28.00	15.00	27.00	23.00	27.00
Scrap Iron and Steel.							
Melting Steel, Pittsburgh	17.00	12.75	22.00	14.00	27.00	20.50	21.75
Heavy steel scrap, Phila.	16.00	10.00	19.00	11.00	26.50	18.00	20.00
Heavy melting steel, Chi.	16.50	10.00	19.00	11.00	24.50	18.50	19.00
No. 1 cast, Pittsburgh ..	22.50	15.00	25.00	16.00	27.50	22.50	25.75
Iron and Steel Products.							
Bessemer rails, mill	45.00	40.00	43.00	40.00	43.00	43.00	43.00
Iron bars, Pittsburgh	3.06	1.85	2.55	1.80	2.82	2.35	2.80
Iron bars, Philadelphia ..	3.85	1.80	2.58	1.70	2.82	2.32	2.82
Steel bars, Pittsburgh ..	2.35	1.50	2.25	1.35	2.40	2.00	2.40
Tank plate, Pittsburgh ..	2.65	1.50	2.50	1.35	2.50	2.00	2.50
Structural shapes, Pitts..	2.45	1.50	2.25	1.35	2.50	2.00	2.50
Grooved steel skelp, Pitts.	2.45	1.50	2.10	1.40	2.50	2.00	2.50
Black sheets, Pittsburgh.	4.35	2.75	3.75	3.00	4.00	3.35	3.85
Galvanized sheets, Pittsb.	5.70	3.75	4.75	4.00	5.50	4.35	5.00
Tin plate, Pittsburgh ...	7.00	4.75	4.75	4.60	6.00	4.75	5.50
Wire nails, Pittsburgh ..	3.25	2.50	2.70	2.40	3.00	2.70	3.00
Steel pipe, Pittsburgh...	57½%	71%	66%	71%	62%	66%	62%
Connellsville Coke at Ovens.							
Propt furnace	5.00	2.75	15.00	3.75	9.00	5.00	5.00
Prompt foundry	7.00	3.75	16.00	3.75	9.50	6.00	6.00
Metals — New York.							
Straits tin	65.00	32.50	39.00	25.50	51.50	28.75	42.62½
Lake Copper	20.50	13.75	14.00	12.00	17.50	12.75	15.37½
Electrolytic copper	19.50	12.75	13.75	11.50	17.25	12.50	14.75
Casting copper	19.25	12.75	13.00	11.25	16.87½	12.25	14.50
Sheet copper	29.50	22.50	21.50	19.50	25.50	19.25	24.25
Lead (A. S. & R. Co. price)	9.25	4.75	5.00	4.00	8.25	4.70	7.25
Zinc (spelter)	9.85	6.00	6.10	4.25	8.35	4.82½	6.80
Chinese and Japanese Ant.	11.62½	5.20	6.00	4.45	9.00	4.15	7.05
Aluminum, 98-99%	32.75	22.00	26.00	17.00	26.00	16.50	26.25
Silver	137	59¼	73⅝	52⅝	73¾	62⅜	66
St. Louis.							
Lead *	9.15	4.45	5.05	3.90	8.50	4.35	7.02½
Zinc (spelter)	9.50	5.50	5.60	4.12½	8.00	4.47½	6.45
Sheet zinc (f.o.b. smelter)	12.50	11.50	11.50	8.50	10.00	7.50	9.20
London.	£	£	£	£	£	£	£
Standard tin prompts	415½	198	210½	148	232	139	200
Standard copper, prompts	122	70½	75½	65¼	76¼	57⅛	66½
Lead	52⅜	21½	26	16½	29⅝	19½	25¾
Zinc (spelter)	63	22½	28¼	23½	39⅛	23⅞	31½

* Outside market.

COMPARISON OF SECURITY PRICES

Iron and Industrial Stocks.	Range. 1920. High.	Low.	Range. 1921. High.	Low.	Range. 1922. High.	Low.	Range. 1923. High.	Low.	Closing May 31, 1923.
Allis-Chalmers	53⅞	26½	39¾	28¼	59¾	37¾	51¼	38½	43
American Can	61¾	21¾	35½	23½	76½	32⅛	106	73½	101¾
American Car & Fdy...	147⅜	111	151	115¼	201	141	189	165	172½
American Loco	109¼	74	110¼	73½	138½	102	143¾	120⅛	140½
American Smelt. & Rfg.	72	29¼	47¼	29⅝	67½	43⅝	69½	53	61⅛
Am. Steel Found., new.	50	26	35	18	46⅛	30¾	40⅞	34½	37⅛
Anaconda Copper	66½	30	50¾	31¾	57	45	53½	43⅝	45⅜
Baldwin Loco	148½	78	100⅜	62¼	142¾	92¾	144¼	123⅜	133¾
Bethlehem Steel.....	....	....	....	....	79	51	70	51	54¼
Butte & Superior	29¼	8	22⅛	10	35¼	20⅜	37⅜	20½	24⅞
Cerro de Pasco	61⅜	24¼	36½	23	46⅜	32⅞	50½	41⅛	42¾
Chile Copper	21¼	7¾	16⅞	9	29¼	15⅛	30⅝	26⅛	27⅛
Chino Copper	41⅝	16⅜	29½	19½	33⅜	22¼	31⅞	21¼	22½
Colo. Fuel & Iron	44¼	22	32¾	22	37⅜	24	35⅜	25¼	34½
Crucible Steel	278½	70	107½	49	98⅜	52¾	84½	63½	71¾
General Electric	172	116½	143¾	109½	190	136	190	170½	179
General Motors	42	10¾	16¼	9⅜	15¼	8⅛	17½	13¼	14⅞
Granby Con.	55½	15	34½	15	35	22	33	22¼	24⅜
Great Northern Ore ...	41⅝	24⅞	35⅜	25⅝	45⅝	28⅞	36	27½	30
Gulf States Steel	84⅞	25	50⅞	25	94⅞	44⅞	104⅝	77½	85½
Inspiration Copper	61⅞	28	42¼	29⅝	45	31	43¾	31½	32½
International Harvester	142½	88	100½	67⅝	115⅞	79⅜	98½	79¼	84½
International Nickel...	26¾	11⅛	17	11½	19¾	11¼	16¼	13⅜	14
Kennecott Copper	33½	14⅝	27⅞	16	39⅝	25½	45	34⅝	37½
Midvale Steel	52¾	29½	33½	22	45½	26	33⅜	26	27
National Enam. & Stg..	89½	43¾	66	26	68½	30¾	73	59¼	65¼
National Lead	93¼	63½	87	67¾	129¼	85	136¾	111¼	124
N. Y. Air Brake (Cl. A).	....	....	....	....	51¼	45⅛	51½	46	48⅝
Pressed Steel Car	113⅞	72½	96	48	95¼	63	81½	51½	56
Railway Steel Spring ..	106½	73	99½	67	126¼	94	123	108	113
Ray Consolidated	22¾	10	15⅞	11	19	12⅛	17¼	12½	13⅛
Republic Iron & Steel.	124¾	55¼	73½	41	78½	43½	66¼	46¼	51⅜
Sloss-Sheffield	82¼	43	56	32⅛	54½	34½	60	42	51
U. S. Cast Iron Pipe ...	25½	10½	19	11½	39	16⅛	34½	22⅝	26
U. S. Smelt., Rfg. & M.	76	29½	39⅜	26	45¾	32¾	43⅜	29	31¾
U. S. Steel Corporation	109	76¼	86½	70	111½	82	109⅝	95	97¾
U. S. Steel Corp. pfd....	115¾	104⅛	115	105	123	114¼	123½	116¾	117½
Utah Copper	80¾	44⅛	63⅜	41⅛	71½	59	76½	61¾	66
Westinghouse Electric.	55⅛	40	52¼	38⅞	65⅞	49⅛	67⅛	52⅞	56¼

BUSINESS TRENDS

FEWER NEW ENTERPRISES.

During May 894 new companies were organized under the laws of the different States with an authorized capital of $100,000 or over, involving $817,229,500. In April 1,014 charters were filed, representing in the aggregate $1,006,258,300, while in May a year ago 954 companies were incorporated with a combined total of $938,195,000. Readjustment in some lines of trade or industry explains the decrease in the volume of new promotions. However, it is to be said that the general business outlook continues favorable.

Since January 1st, 4,226 new companies have been formed with an authorized capital of $3,934,708,900. In the first five months of 1922 4,583 concerns were incorporated with a grand total of $3,-897,200. During the corresponding period in 1921 5,154 new enterprises were organized with an authorized capital of $4,440,404,000.

The following are the comparative figures as compiled by **The Journal of Commerce** of companies incorporated in the States with authorized capital of $100,000 or over.

	1923	1922
January	$909,693,800	$ 843,652,900
February ...	700,708,300	591,404,300
March	500,819,000	731,866,000
April	1,006,258,300	792,372,000
May	817,229,500	938,195,000
June	.....	297,557,000
July	.....	634,259,200
August	.....	646,605,000
September ..	.....	650,044,000
October	.....	651,577,390
November ..	.....	808,719,600
December ...	.....	813,901,000
Total	.....	8,400,153,390

BUILDING RETURNS.

The revolt at New York City against high cost of building, indicated by Bradstreet's report for April, evidently extended to the rest of the country during May, because the total value of the building permitted for at 131 cities for May was only $238,314,443, as against $287,084,634 at the identical cities in April, and $314,141,886 at those same cities in March. There is here indicated a decrease of $58,000,000, or 17%, from April, and of $76,000,000, or 24.2%, from March, which is evidently a fairly practical measure of the extent to which new building projects have been shelved owing to the pressure of labor or material costs, or both. Compared with May a year ago, there is a gain still indicated at the identical cities of $18,400,-000, or 8.3%.

The appended figures cover the period during which construction in the United States broke all earlier records.

	1922	1921	Change per cent.
Jan. .	$140,517,763	$61,133,167	I 129.5
Feb. .	135,452,009	84,480,760	I 60.4
Mar. .	241,460,369	124,337,045	I 94.1
April .	217,171,601	149,457,989	I 45.3
May .	247,722,281	143,699,279	I 72.4
June .	250,172,411	147,328,348	I 69.7
July .	205,244,105	151,862,525	I 35.1
Aug. .	220,456,973	159,940,684	I 37.8
Sept. .	200,588,817	153,763,676	I 30.4
Oct. ..	209,070,208	172,517,220	I 21.5
Nov. .	206,345,905	148,066,886	I 39.1
Dec. .	223,861,943	141,694,615	I 58.0
12 mos.	2,498,064,385	1,638,282,194	I 52.5

Cities	1923	1922	
Jan., 164	$194,782,219	$141,791,402	I 38.0
Feb., 164	221,826,741	136,274,184	I 62.8
Mar., 155	377,831,286	243,531,710	I 55.1
1st quar.	794,440,246	521,597 296	I 52.3
Apr. 165	327,605,953	217,912,121	I 50.3
May, 131	238,314,443	219,908,264	I 8.3

CAR LOADINGS.

Car loadings for the week ending May 26th (1,014,029) were not only the greatest this year, but have been surpassed only twice before in the country's history, and then in October, 1920 and 1922, and show an increase of 22,232 over the preceding week, 207,152 cars over the same week of 1922, 218,694 cars over 1921, and 115,860 cars over 1920.

Week ended	1923	1922	1921
May 26 ..	1,014,029	806,877	795,335
May 19 ..	991,797	780,953	770,991
May 12 ..	974,531	767,094	751,186
May 5 ..	961,029	747,200	721,722
April 28 ..	963,694	751,111	721,084
April 21 ..	957,743	706,137	704,632
April 14 ..	946,759	700,155	702,116
April 7 ..	895,767	706,013	694,881
Mar. 31 ..	938,725	851,808	663,171
Mar. 24 ..	917,036	837,241	686,567
Mar. 17 ..	904,286	815,082	691,396
Mar. 10 ..	905,219	829,128	700,440
Mar. 3 ..	917,896	793,115	711,367
Feb. 24 ..	830,223	728,925	659,642
Feb. 17 ..	817,778	773,275	692,007
Feb. 10 ..	853,289	777,791	687,867
Feb. 3 ...	865,675	747,895	699,718
Jan. 27 ..	871,164	740,386	701,605
Jan. 20 ..	865,578	731,109	708,658
Jan. 13 ..	873,251	714,191	715,855
Jan. 6 ...	770,303	599,433	697,641

Car loadings for twenty-one weeks of 1923 total 18,935,772, against 15,885,530 last year, 14,877,781 in 1921 and 15,051,647 in 1920.

BUSINESS TRENDS

BANK CLEARINGS SHOW GAINS.

Bank clearings in May as reported by "Bradstreet's" showed a rally from the lessened totals of April, but were not so large as were those of March or January. Because of comparisons now with a year ago being with increasingly large totals, the percentage of gain for May over May a year ago is only a shade greater than that shown in April and far below that for March or preceding months. New York's clearings, however, made a better showing in May than in April, although, as in April, a slight decrease was shown from a year ago.

The total clearings at 118 American cities for May were $34,792,666,000, a gain of 5.4% over April and of 7.7% over May a year ago. New York clearings in May were $19,211,755,000, a gain of 6.6% over April, but a very slight shade of 1% below May a year ago. Clearings at 117 cities outside of New York in May were $25,580,911,000, a gain of 3.8% over April and of 19.2% over May a year ago. Clearings outside of New York were in fact practicallly equal to those for March, but New York clearings were 2.8% less than that month. The country's clearings in May were in excess of those for May, 1921, by 26%, and fell only 2% short of those of May, 1920.

(Six figures omitted.)

	1923	1922	1921	1920
Jan.	$36,368	$29,450	$32,223	$40,169
Feb.	30,035	26,023	25,443	32,001
Mar.	35,354	31,528	29,672	39,703
Apr.	33,015	30,996	27,688	38,012
May	34,793	32,346	27,367	35,527
June	.....	33,558	28,916	36,800
July	.....	31,235	26,834	35,819
Aug.	.....	29,879	26,096	32,799
Sept.	.....	30,712	27,059	34,385
Oct.	.....	34,890	28,974	37,099
Nov.	.....	31,329	29,200	34,407
Dec.	.....	33,775	31,402	36,029
Total	.....	375,721	340,874	432,750

FEWER FAILURES, SMALLER LIABILITIES.

The May failure report to Bradstreet's is a favorable one, the number recorded being less than in any other month since September, and with that single exception the smallest total in two years. Liabilities make a slightly better showing than do failures, the aggregate of these being the smallest for any month since August of 1920. Compared with May a year ago the northwestern group alone showed an increase in number and liabilities, but the southern group, as for some years past, led in May in the number of failures.

There were 1,467 failures reported to Bradstreet's in May, a decrease of 10% from the shorter month of April and of 11% from May a year ago. There were only seven more failures in May than in September last year, a shorter month. Liabilities for May totaled $31,765,102, a decrease of 38% from April and of 20% from May a year ago.

Failures for five months of this year totaled only 8,548, a decrease of 2,272, or 21% (103 a week, in fact), from the like period a year ago. Liabilities for five months totaled $235,788,071, a decrease of $120,000,000, or 33%, from the like period of 1922.

The following table gives the failures, assets and liabilities during May from 1913 to 1923, inclusive:

	Number	Assets	Liabilities
1923	1,467	$15,983,105	$31,765,102
1922	1,775	27,217,463	48,208,164
1921	1,326	34,891,849	58,200,293
1920	452	8,431,789	16,966,019
1919	428	3,588,124	8,144,271
1918	792	4,721,058	9,067,663
1917	1,189	7,109,912	14,282,275
1916	1,404	9,730,232	20,118,083
1915	1,436	9,973,210	18,138,775
1914	1,181	9,493,349	17,491,672
1913	1,104	7,574,645	14,589,588

COMMODITY PRICES AGAIN GO LOWER.

Bradstreet's Index Number of Wholesale prices for June 1st was 13.3841, a decrease of 2% from May 1st, which in turn saw a decline of 2% from April 1st, when the price situation had turned after the uprush of March. The June 1st index number is the lowest recorded since November 1, 1922, but it is 12.4% above June 1st a year ago and 26% above the low point touched on June 1st two years ago at the end of the 1920-21 decline. The number is still 35.8% below the high point of February 1, 1920, but is 37.5% above the level of August 1, 1914.

A monthly range of index numbers of the past four years is given below:

	1923.	1922.	1921.	1920.
Jan.	13.7011	11.3725	12.6631	20.3638
Feb.	13.7236	11.4190	12.3689	*20.8690
Mar.	13.9332	11.6001	11.8650	20.7950
April	13.9304	11.5317	11.3749	20.7124
May	13.6665	11.7044	10.8208	20.7341
June	.....	11.9039	10.6169	19.8752
July	.....	12.1069	10.7284	19.3528
Aug.	.....	12.0688	11.0576	18.8273
Sept.	.....	12.0793	11.0868	17.9746
Oct.	.....	12.5039	11.1879	16.9094
Nov.	.....	13.3482	11.3514	15.6750
Dec.	.....	13.7835	11.3127	13.6263

* High record.

dropping in with fair regularity than to have the large orders stop with nothing to take their place. Aren't they worth the effort it takes to get them?—**American Machinist.**

Universal Gas Mask—Development of a universal gas mask, which is considered to have the widest application of any gas mask thus far devised, and which fills every demand that may be reasonably made upon a gas mask, is announced by the Department of the Interior as the result of experimental work performed by the Bureau of Mines at its Pittsburgh (Pa.) station. The department also announces the development of a fireman's canister, which is similar to the universal canister, but is smaller and lighter, thus making it more convenient for the use of city firemen. By the use of these types of gas masks, workers in many metallurgical and chemical plants may encounter a variety of gases, and city firemen may meet almost any type of gas or vapor, and do work that they could not otherwise do except at the risk of death or serious disability. After an extended series of experiments by the Bureau of Mines, the universal gas mask was developed. The canister contains granular absorbents, consisting of activated charcoal, for removing organic vapors; a filter of cotton wool for removing smokes, dusts and mists; caustic soda fused on pumice stone for removing acid gases; another cotton-wool filter; fused calcium chloride for extracting water vapor that inhibits action of the next absorbent; "hopcalite," a mixture of oxides of manganese and copper with sometimes silver and cobalt that destroys carbon monoxide; and finally silica gel for absorbing ammonia. —**American Industries.**

Women Engineers in England—While this country can boast of a few women engineers, it certainly has not reached the stage of England, where there has been an annual gathering—the first of its kind—of the Women's Engineering Society. They came together at Birmingham University in April, with forty delegates. There was a paper by a Miss Partridge, B. Sc., on her practical experience in electrical contracting; another on some considerations of electrical design by a lady who is an associate member of the Institute of Electrical Engineers, and a lecture, with lantern slides, on the development of the woman engineer in France, by Madame Laurent, a director of the Ecole Technique Feminin de Paris, which would indicate that in France, too, women are going into engineering work. Mrs. Frank G. Gilbreth, the well-known wife and coworker of the equally well-known American efficiency engineer, was to have spoken, but was kept away from the meeting by illness. While we adhere to the feminist view that women are people and that therefore sex is a curious basis for technical society segregation, it is obviously our duty to record this latest development.—**Engineering News-Record.**

Special and Universal Standardization—"News of the formation of a body to deal with marine standardization, as just reported, makes an interesting addition to the story of the development of standardization methods, and recalls various doubts and misgivings that have existed," says **Engineering News-Record.** "Technical standardization until recent years was parceled out into many small specialty fields, apparently each unrelated to any other. Then followed the successful attempt to bring all the work under central control, wiping out the boundary lines between fields, by the establishment of the American Engineering Standards Committee. It was a swing from an extreme to the opposite—from narrowest limitation to vague, formless universalism. Now comes the first sign of a return to an intermediate position, with specialization again claiming its place. Both of the extremes have weaknesses that are more or less obvious. With intensive specialization the narrowness of object is (or was) frequently accompanied by narrowness of view, leading to disregard of essential considerations, and therefore yielding unsound results. With the wiping out of specialization came loss of aim and vital impulse, so that the results produced were apt to be bloodless. Somewhere between, in some intermediate conditions, there must be a minimum of faults and a maximum of efficiency. It may be that the re-establishment of independent specialty standardization in the marine field will help in bringing us nearer the ultimately desirable adjustment."

IRON AND STEEL MARKET

May was a month of relatively few developments in the iron and steel market, from the viewpoint of actual occurences. The general turn in the iron and steel market was rounded in March, when coke and pig iron reached their highest point in prices and scrap both advanced and declined. March was not the highest month in steel prices, for some advances in prices for forward deliveries occurred in April, but these were belated advances. Taking account of prices for early shipment March was the highest month in steel, for delivery premiums began decreasing early in April.

The end of May thus virtually found the steel market two months after its turn. There are two kinds of turn. An upward trend may be replaced by a downward trend, or by a steady condition, the line being horizontal instead of trending downward. The turn the iron and steel trade rounded in March was of the latter description. The trade swung into a straight stretch. Production did not decrease and consumption did not decrease. Rather, consumption increased by reason of the season of year.

Steel prices for forward delivery did not decline in May in the case of any commodity. Delivery premiums disappeared, which meant a decline in the prompt market, but the existence of delivery premiums, while advantageous to some producers, is not indicative of the healthiest condition in trade generally. The business of consuming steel is more important to the country as a whole than is the production of steel. That is a palpable fact, though it is not always emphasized because the steel producers chance to have more spokesmen than the steel consumers. It is not good that one who wishes to consume steel cannot get it readily. Delivery premiums therefore do not represent a particularly healthy state of trade in general. They cannot be permanent, and the distributor or manufacturing consumer may pass the extra price to the ultimate consumer.

A very favorable negative develop-

COMPOSITE PIG IRON.

Computation for June 1, 1923.

One ton Bessemer, valley	$29.00
Two tons basic, valley (27.50)	55.00
One ton No. 2 fdy., valley	29.00
One ton No. 2X fdy., Philadelphia	31.26
One ton No. 2X fdy., Buffalo	29 25
One ton No. 2 fdy., Cleveland	30.77
One ton No. 2 fdy., Chicago	32.61
Two tons No. 2 Southern foundry, Cincinnati (31.05)	62.20
Total, ten tons	298.99
One ton	**29.899**

Averaged from daily quotations.

	1923.	1922.	1921.	1920.	1919.	1918.
Jan.	27.31	19.71	32.62	39.84	32.39	34.19
Feb.	27.98	19.31	29.95	42.72	32.39	34.19
Mar.	30.36	19.26	27.35	43.05	30.47	34.14
Apr.	31.44	20.77	25.80	43.62	28.05	33.88
May	30.84	23.91	24.67	44.43	27.74	33.88
June	.....	24.29	23.08	44.80	27.15	33.91
July	.....	24.54	21.57	45.60	27.66	34.04
Aug.	.....	27.74	20.29	47.41	27.99	34.04
Sept.	.....	32.48	20.99	48.98	28.26	34.31
Oct.	.....	31.82	21.15	47.07	28.65	35.36
Nov.	.....	29.47	20.92	41.80	31.48	35.39
Dec.	.....	26.73	20.42	36.31	36.73	35.23
Year	.....	25.00	24.05	43.80	29.91	34.38

Annual Averages

1917	39.99	1914	13.52
1916	20.31	1913	15.42
1915	14.15	1912	14.82

COMPOSITE STEEL.

Computation for June 1, 1923.

Pounds	Group	Av. Price	Extension
2½	Bars	2.40	6.000
1½	Plates	2.50	3.750
1½	Shapes	2.50	3.750
1½	Pipe (1-3)	3.80	5.700
1½	Wire nails	3.00	4.500
1	Sheets (28 ga.)	2.85	3.850
½	Tin plate	5.50	2.750
Total, ten pounds			30.300
One pound			**3.03**

Averaged from daily quotations.

	1923.	1922.	1921.	1920.	1919.	1918.
Jan.	2.59	2.16	3.25	3.35	3.58	3.80
Feb.	2.72	2.14	3.10	3.58	3.58	3.80
Mar.	2.83	2.09	2.94	3.78	3.47	3.80
Apr.	2.99	2.16	2.93	3.77	3.25	3.80
May	3.03	2 18	2.93	3.71	3.25	3.80
June	....	2.22	2.83	3.67	3.25	3.80
July	....	2.23	2.63	3.70	3.25	3.80
Aug.	....	2.36	2.48	3.80	3.25	3.80
Sept.	....	2.51	2.37	3.80	3.22	3.80
Oct.	....	2.57	2.31	3.67	3.23	3.80
Nov.	....	2.57	2.28	3.50	3.25	3.80
Dec.	....	2.57	2.23	3.28	3.25	3.67
Av.	....	2.31	2.69	3.63	3.32	3.79

Annual Averages

1917	4.46	1916	2.80	1915	1.63
1914	1.52	1913	1.72	1912	1.63

ment in May was the practical absence of cancellations of steel orders or requests for postponement of delivery. Sometimes this occurs when a strong and advancing market gives way to a quiet and steady market, through deliveries being heavy Buyers find that way they have overbought, or having known all along that they were overbuying, find that those from whom they have bought can deliver the goods and wish to do so. The month of May brought no such development, and as far as it went indicated that the steel bought is required for actual work.

Any survey of the industrial situation in the country must convince the seeker after truth that the consumption of steel is certain to continue for months, perhaps clear through the year, at substantially the rate that has obtained in recent months. There need be no doubt about that. The uncertainty is whether the rate of consumption, say in April and May, was fully equal to the rate of production. That is still to be developed. No one really knows.

PIG IRON

April had been a dull month in pig iron, following the active buying and advancing prices of the three months preceding, but pig iron prices did not decline to any extent in that month. In May there were very general declines. Birmingham and Chicago did not decline, while practically all other markets did. Our composite pig iron decreased

PIG IRON PRICES.

(Averaged from daily quotations; at Philadelphia, Buffalo, Cleveland and Chicago, prices are delivered.)

	Bessemer	Basic Valley	No. 2 fdy. Valley	Basic Phila.	No. 2X Phila.	No. 2X foundry Buffalo.	No. 2 fdy. Cleveland.	No. 2 fdy. Chicago.	No. 2 fdy. Birmingham.	Ferro-manganese.*	Comp. Pig Iron.
Feb. 1921	29.63	27.71	28.29	29.28	30.73	30.17	30.15	30.87	27.50	90.00	29.95
Mar. ...	26.70	24.41	25.89	26.54	28.03	29.01	27.70	27.07	25.52	90.00	27.35
April ..	25.00	23.00	24.81	25.47	26.38	27.17	26.77	25.32	23.77	90.00	25.80
May ...	24.32	22.15	23.60	23.70	24.96	25.40	25.56	23.70	21.80	85.00	24.47
June ...	22.88	21.20	22.42	23.54	24.21	22.45	24.17	22.08	20.48	75.00	23.08
July	21.34	19.52	20.40	22.40	23.00	20.68	21.66	19.98	20.18	70.00	21.57
Aug. ...	20.00	18.22	19.59	19.70	20.42	19.48	20.56	19.64	18.70	68.50	20.29
Sept. ..	20.00	19.00	20.86	19.14	20.84	20.08	20.56	22.18	19.06	66.00	20.99
Oct. ...	20.00	19.24	21.00	20.50	21.40	20.50	20.56	22.35	19.00	60.00	21.15
Nov. ...	20.00	19.00	20.78	20.50	21.93	19.82	20.56	21.79	18.56	60.00	20.92
Dec. ...	20.00	19.00	20.00	20.45	21.88	19.38	20.56	20.53	17.31	59.00	20.42
Jan. 1922	19.62	18.19	19.38	20.25	21.34	19.75	19.92	19.84	15.96	58.00	19.71
Feb. ...	19.40	18.00	18.92	19.84	21.34	19.06	19.56	19.18	15.33	65.75	19.31
Mar. ...	19.02	17.89	18.87	19.84	20.73	18.56	19.56	20.48	15.31	62.50†	19.26
April ..	20.88	19.98	20.74	20.75	22.90	20.89	20.76	21.06	15.74	68.00†	20.77
May ...	25.08	24.62	24.00	23.37	25.51	23.44	24.56	23.05	17.63	70.00†	23.91
June ..	25.00	25.00	24.00	25.00	26.62	22.96	24.56	23.83	18.44	68.50†	24.29
July ...	25.00	24.32	24.20	25.54	28.00	25.05	24.56	24.73	18.56	69.00†	24.54
Aug. ...	27.74	26.17	29.04	29.00	31.69	30.42	29.16	28.17	20.37	70.00†	27.74
Sept. ..	33.76	30.08	35.02	30.90	34.76	34.13	35.50	32.53	25.40	77.00†	32.48
Oct. ...	33.23	30.23	31.63	29.50	32.69	31.60	34.27	32.15	27.04	100.00†	31.82
Nov. ...	31.70	28.28	28.78	28.14	30.78	28.41	31.34	30.65	24.12	100.00‡	29.46
Dec. ...	27.78	24.96	25.92	27.50	28.53	26.19	27.38	28.09	22.70	100.00‡	26.73
Jan. 1923	27.50	25.00	27.00	27.90	28.72	27.44	27.83	29.09	23.23	103.00‡	27.31
Feb. ...	27.75	25.67	27.21	28.25	29.79	28.52	28.42	30.13	24.29	106.00‡	27.98
Mar. ...	29.94	29.44	30.00	29.17	31.86	29.40	31.31	31.46	26.33	117.00‡	30.26
April ..	31.00	31.00	31.00	30.50	33.01	30.17	32.50	32.61	27.00	116.50‡	31.44
May ...	30.23	29.33	30.69	30.85	32.64	29.29	32.13	32.61	27.00	123.00‡	30.84
Yearly averages.											
1913 ...	16.26	14.77	14.87	16.23	16.56	14.87	15.37	16.39	11.73	57.87	15.42
1914 ...	13.99	12.89	13.02	14.02	14.59	12.84	13.76	14.15	10.25	55.80	13.52
1915 ...	14.90	13.78	13.81	14.88	15.25	13.98	14.31	14.46	10.59	92.21	14.15
1916 ...	23.05	19.87	20.16	20.96	21.20	20.63	20.40	20.67	15.84	164.12	20.31
1917 ...	42.67	39.10	39.89	39.37	40.80	40.41	40.61	41.06	35.11	309.17	39.99
1918 ...	35.46	32.50	33.27	34.10	35.56	33.97	33.62	33.77	33.20	245.83	34.38
1919 ...	29.62	27.49	28.63	30.02	32.75	30.53	29.14	29.37	28.34	132.16	29.91
1920 ...	42.85	42.05	43.25	43.26	46.74	45.23	43.66	43.25	40.43	172.33	43.80
1921 ...	23.49	21.87	23.30	23.56	24.74	23.78	24.34	24.05	21.92	76.54	24.05
1922 ...	25.68	23.98	25.04	24.88	27.07	25.04	25.93	25.31	19.72	75.33	25.00

* Delivered. † Seaboard. ‡ F. o. b. furnace.

from $31.37 on May 1st to $29.90 on June 1st, or by about $1.50 a ton.

Furnaces in some districts are well sold up through the third quarter, while in other districts less than half the prospective make of the quarter is sold. Pig iron buyers generally have exhibited a cautious attitude, feeling that they are unlikely to lose by waiting. There may not be any general movement to buy pig iron for the quarter, users contenting themselves with purchases of more or less hand to mouth character.

PIG IRON PRODUCTION

Production of pig iron in May established a new maximum record. Total output of coke and anthracite iron was 3,867,694 tons, equivalent to a daily rate of 124,764 tons. The previous maximum rate was in April this year when the daily rate was 118,324 tons. Including charcoal iron, production of pig iron in May was at the rate of 45,750,000 tons a year and on June 1st the 321 furnaces active, according to the reports to the Iron Age, had a daily capacity of 125,100 tons a day. On May 1st 310 furnaces were active, having a rated capacity of 119,500 tons a day, and on that date pig iron was being produced at the rate of 44,000,000 tons a year. Today's rate of output is 13% above that in 1916 when total production was 39,434,000 tons which, up to this year, was the year of maximum production.

Steel companies in May produced 2,976,892 tons which is at an average daily rate of 96,029 tons. Merchant furnaces last month produced 890,802 tons, equivalent to a daily rate of 28,735 tons. The total production of coke and anthracite iron in April was 35,549,736 tons, that is for a month of 30 days but it established a new high record even for a month of 31 days. The previous largest monthly output up to that time was 3,523,868 tons in March. The May output as above noted was 3,867,694 tons.

The following table shows the estimated annual rates of production of coke and anthracite iron in each month during the last three years.

Estimated annual rates.

	1923	1922	1921
Jan.	38,000,000	19,300,000	28,750,000
Feb.	39,000,000	21,300,000	25,550,000
Mar.	41,300,000	24,000,000	19,000,000
April	43,400,000	25,250,000	14,600,000
May		27,250,000	14,450,000
June		28,900,000	13,000,000
July		28,500,000	10,200,000
Aug.		21,550,000	11,250,000
Sept.		24,950,000	13,000,000
Oct.		31,350,000	14,600,000
Nov.		34,900,000	17,200,000
Dec.		36,350,000	19,400,000

Yearly Totals

1922	27,219,904		
1921	16,688,126	1916	39,434,797
1920	36,925,987	1915	29,916,213
1919	31,015,364	1914	23,332,244
1918	39,054,644	1913	30,966,152
1917	38,621,216	1912	29,726,937

UNFINISHED STEEL AND IRON BARS.

Averaged from daily quotations.

Jan.	45.00	47.00	57.00	2.85	3.06	2.68
Feb.	42.00	42.00	57.00	2.70	2.70	2.62
Mar.	39.00	39.00	47.00	2.56	2.60	2.60
April	37.00	38.50	47.50	2.35	2.45	2.45
May	37.00	39.00	48.00	2.35	2.35	2.38
June	35.00	36.00	48.00	2.20	2.25	2.25
July	32.00	33.00	43.00	2.07	2.20	1.94
Aug.	30.25	30.50	42.00	2.00	2.08	1.75
Sept.	30.00	30.00	40.50	1.97	2.00	1.75
Oct.	30.00	30.00	40.00	1.92	2.00	1.75
Nov.	29.00	30.00	40.00	1.90	1.97	1.70
Dec.	29.00	29.00	38.00	1.85	1.95	1.70
1922—						
Jan.	29.00	29.00	37.00	1.80	1.82	1.60
Feb.	28.50	29.00	36.00	1.75	1.78	1.60
Mar.	28.00	29.00	36.00	1.70	1.70	1.54
April	30.00	31.75	38.00	1.81	1.75	1.57
May	34.00	35.00	38.00	1.86	1.83	1.65
June	35.00	35.00	38.00	1.96	1.95	1.73
July	35.00	35.00	40.00	2.12	2.13	1.85
Aug.	37.00	37.00	43.00	2.16	2.15	1.95
Sept.	39.00	40.00	45.00	2.48	2.25	2.25
Oct.	39.50	39.50	45.00	2.43	2.40	2.50
Nov.	37.75	37.75	45.00	2.37	2.40	2.50
Dec.	36.50	36.50	45.00	2.32	2.35	2.50
1923—						
Jan.	37.50	37.50	48.50	2.36	2.38	2.45
Feb.	39.40	39.40	50.00	2.51	2.54	2.35
Mar.	44.00	44.00	50.00	2.70	2.70	2.50
April	46.30	45.60	50.00	2.82	2.80	2.60
May	45.00	45.00	50.00	2.82	2.80	2.60
Yearly averages.						
1913.	25.56	26.35	28.39	1.51	1.59	1.45
1914.	20.08	20.84	25.50	1.20	1.27	1.07
1915.	23.14	23.46	28.28	1.37	1.32	1.24
1916.	45.02	45.10	57.58	2.57	2.59	2.31
1917.	71.15	75.87	80.23	4.06	4.09	3.78
1918.	47.30	50.80	57.00	3.71	3.50	3.50
1919.	40.52	43,77	53.11	2.94	2.80	2.69
1920.	57.79	65.21	70.00	4.35	4.13	3.65
1921.	34.60	35.33	45.67	2.23	2.30	2.13
1922.	34.10	34.54	40.50	2.06	2.04	1.94

STEEL PRODUCTION.

According to the American Iron & Steel Institute thirty steel companies which in 1922 produced 84.13% of total ingot output, in May 1923 produced 3,537,753 tons which is at a daily rate of 131,028 tons for a month of 27 active days, whereas the April output of the same companies of 3,321,278 tons was at a daily rate of 132,851 tons for a month of 25 active days. It is thus evident that these companies failed to establish a new high daily record in May as had been anticipated. The United States Steel Corporation, however, did establish a new maximum record in May, having an output of 1,892,000 tons of ingots which was at a daily rate of 70,080 tons a day. The Corporation in May operated at an average rate of 96%, and with the larger capacity produced more steel than in any previous month in the history of organization in total or daily rate.

If the steel companies which do not report to the Institute produced at the same average rate as those who do report, it is indicated that the total production of steel by all companies in May was 4,205,102 tons which is at a daily rate of 155,744 tons. In April all of the steel companies produced 3,947,775 tons

(Continued on next page.)

The following table shows the monthly production reported by the 30 companies which make returns to the American Iron and Steel Institute, as compared with the corresponding months last year, also the estimated annual rate of production by all steel companies for each month during the years 1922 and 1921:

	Month's production as reported.		Estimate of total annual rate. (000 omitted)	
	1922.	1921.	1922.	1921.
Jan.	1,593,482	2,203,180	22,750	29,100
Feb.	1,745,022	1,749,477	26,850	25,400
Mar.	2,370,751	1,570,978	32,550	21,000
April	2,444,513	1,213,958	35,450	16,800
May	2,711,141	1,265,850	36,400	18,000
June	2,634,477	1,003,406	36,600	14,000
July	2,487,104	803,376	36,000	11,100
Aug.	2,214,582	1,138,071	30,000	15,800
Sept.	2,373,779	1,174,740	33,000	16,850
Oct.	2,872,415	1,616,810	40,000	23,000
Nov.	2,889,297	1,660,001	40,000	23,300
Dec.	2,779,890	1,427,093	39,500	19,750
	1923.		1923.	
Jan.	3,251,694		Jan.	43,500
Feb.	2,919,017		Feb.	44,000
Mar.	3,402,007		Mar.	45,500
April	3,321,275		April	49,100
May	3,537,753		May	48,450

STEEL MAKING PIG IRON AVERAGES

Bessemer and basic pig iron averages compiled by Messrs. W. P. Snyder & Company from sales in the valley market of 1,000 tons and over.

	Bessemer.			Basic.		
	1923.	1922.	1921.	1923.	1922.	1921.
Jan.	27.50	19.50	32.00	25.58	18.19	30.00
Feb.	28.02	19.50	27.00	26.38	17.75	25.00
Mar.	30.26	19.39	26.20	30.02	18.00	24.50
April	31.00	20.54	25.00	31.00	19.30	22.50
May	30.10	24.40	24.25	28.06	24.91	21.87
June	.....	25.00	23.00	.....	25.00	20.70
July	.....	25.00	20.88	.....	24.56	18.80
Aug.	.....	28.67	20.00	.....	25.41	18.33
Sept.	.....	33.50	20.00	.....	32.93	19.25
Oct.	.....	33.50	20.00	.....	30.00	19.00
Nov.	.....	31.75	20.00	.....	27.60	19.00
Dec.	.....	28.10	20.00	.....	24.57	18.69
Year	.....	25.75	23.19	.....	24.02	21.47

All prices are f.o.b. valley furnace; freight, August 26, 1920, $1.96; August 1, 1922, $1.77.

STEEL CORPORATION BOOKINGS

Changes in unfilled tonnage with shipments and bookings estimated in percentage of capacity.

	Shipments.	Bookings.	Difference.	Difference.
1921.	%	%	%	Tons
Nov.	52	49	— 3	— 362,287
Dec.	48	49	+ 1	+ 17,872
1922.				
Jan.	47	45	— 2	— 26,736
Feb.	57	49	— 8	— 100,609
Mar.	65	90	+25	+ 353,079
April ...	70	115	+45	+ 602,769
May	75	86	+11	+ 157,311
June	75	103	+28	+ 381,303
July	75	86	+11	+ 140,630
Aug.	67	79	+12	+ 173,944
Sept. ...	67	121	+54	+ 741,502
Oct.	76	91	+15	+ 210,680
Nov.	81	76	— 5	— 62,045
Dec.	80	73	— 7	— 94,539
1923.				
Jan.	86	97	+11	+ 165,073
Feb.	88	117	+29	+ 373,213
Mar.	89	97	+ 8	+ 119,343
April ...	93	84	— 9	— 114,823

Unfilled Orders.

At end of the quarter, last three figures omitted.

	First.	Second.	Third.	Fourth.
1910	5,402	4,257	3,158	2,674
1911	3,447	3,361	3,611	5,084
1912	5,304	5,807	6,551	7,932
1913	7,468	5,807	5,003	4,282
1914	4,653	4,032	3,787	3,836
1915	4,255	4,678	5,317	7,806
1916	9,331	9,640	9,522	11,547
1917	11,711	11,383	9,833	9,381
1918	9,056	8,918	8,297	7,379
1919	5,430	4,892	6,284	8,265
1920	9,892	10,978	10,374	8,148
1921	6,284	5,117	4,560	4,268
1922	4,494	5,635	6,691	6,746
1923	7,403	....	....	....

which was at a daily rate of 157,911 tons a day. Thus, while the total May output was larger than in any preceding month, the daily rate was less than in April.

Independent steel companies are indicated to have produced in May 2,315,102 tons which was at a daily rate of 85,744 tons. In April the independent companies produced 2,232,293 tons which was at a daily rate of 89,292 tons a day, operating at a rate of 92½% of capacity, while the May rate was a little less than 92% of capacity.

The entire industry in May therefore employed a little less than 98% of capacity while in April the industry as a whole utilized 93% of capacity. The annual rate of production in May of all companies therefore was only 48,436,384 tons, whereas the annual rate in April was 49,110,321 tons.

The American Iron & Steel Institute's total output of ingots reported in May of 3,537,753 tons was made up of 2,744,201 tons of open hearth, 788,350 tons of Bessemer and 5,202 tons of all other kinds of steel. In the first five months of the year the 30 companies reporting to the Institute had an output of 16,431,749 tons and all of the steel companies had an output of 19,531,378 tons approximately.

SEMIFINISHED STEEL

Steel mills having regular sheet bar customers covered their customers in May for third quarter, the price generally being $45.00, while the tonnage taken was somewhat moderate. Occasional sales for early delivery, in billets, slabs or sheet bars, were made at less than $45.00, but this is the general market

FINISHED STEEL PRICES.

(Averaged from daily quotations, f. o. b. Pittsburgh.)

							Grooved	—— Sheets ——				Comp.
	Shapes.	Plates.	Bars.	Pipe	Wire.	Wire Nails.	Steel Skelp.	Black.	Galv.	Blue Annld.	Tin plate.	Fin. Steel.
Feb. 1921	2.30	2.35	2.13	57½	3.00	3.19	2.30	4.22	5.45	3.30	7.00	3.10
Mar.	2.10	2.10	2.00	57½	3.00	3.01	2.20	3.95	4.98	3.00	7.00	2.94
April ...	2.16	2.16	2.06	61	3.00	3.15	2.15	3.90	4.85	3.05	6.54	2.93
May	2.20	2.20	2.10	62½	3.00	3.25	2.20	4.00	5.00	3.10	6.25	2.93
June	2.15	2.06	2.08	62½	2.75	3.00	2.10	3.86	4.80	2.95	5.90	2.83
July	1.96	1.93	1.88	64	2.56	2.81	1.90	3.46	4.40	2.55	5.75	2.63
Aug.	1.84	1.84	1.75	64½	2.50	2.75	1.75	2.94	3.94	2.30	5.25	2.48
Sept.	1.68	1.67	1.67	66⅝	2.57	2.85	1.67	2.83	3.83	2.33	5.00	2.37
Oct.	1.60	1.59	1.60	68½	2.60	2.90	1.65	3.00	4.00	2.25	4.75	2.31
Nov.	1.60	1.51	1.56	68½	2.60	2.90	1.60	2.92	3.92	2.25	4.75	2.28
Dec.	1.57	1.50	1.53	69¾	2.44	2.70	1.52	3.00	4.00	2.25	4.72	2.23
Jan. 1922	1.50	1.50	1.50	71	2.25	2.50	1.50	3.00	4.00	2.25	4.75	2.16
Feb.	1.46	1.46	1.46	71	2.22	2.47	1.46	3.00	4.00	2.25	4.75	2.14
Mar.	1.41	1.39	1.41	71	2.25	2.40	1.40	3.00	4.00	2.25	4.61	2.09
April	1.50	1.49	1.50	71	2.25	2.40	1.50	3.12	4.12	2.37	4.66	2.16
May	1.52	1.52	1.55	71	2.25	2.40	1.55	3.15	4.15	2.40	4.72	2.18
June	1.60	1.60	1.60	71	2.25	2.40	1.60	3.15	4.15	2.40	4.75	2.22
July	1.62	1.62	1.62	71	2.25	2.40	1.62	3.15	4.15	2.40	4.75	2.23
Aug.	1.82	1.82	1.80	70⅛	2.26	2.41	1.80	3.27	4.27	2.46	4.75	2.36
Sept.	2.00	2.00	1.92	68	2.37	2.62	2.10	3.35	4.35	2.60	4.75	2.51
Oct.	2.00	2.08	2.00	66⅞	2.45	2.70	2.05	3.35	4.35	2.70	4.75	2.57
Nov.	2.00	2.00	2.00	66	2.45	2.70	2.00	3.35	4.35	2.55	4.75	2.57
Dec.	2.00	2.00	2.00	66	2.45	2.70	2.00	3.35	4.35	2.50	4.75	2.57
Jan. 1923	2.04	2.04	2.00	66	2.49	2.70	2.00	3.35	4.35	2.50	4.75	2.59
Feb.	2.16	2.18	2.16	64¼	2.61	2.80	2.16	3.40	4.49	2.55	4.78	2.72
Mar.	2.29	2.29	2.25	64	2.70	2.82	2.30	3.63	5.00	2.95	5.09	2.83
April	2.46	2.46	2.36	63¼	2.70	2.94	2.40	3.97	5.20	3.20	5.50	2.99
May	2.50	2.50	2.40	62⅝	2.75	3.00	2.42	3.85	5.10	3.15	5.50	3.03
Yearly averages:												
1913	1.42	1.41	1.38	79¾	1.50	1.70	1.39	2.20	3.28	1.68	3.56	1.72
1914	1.16	1.14	1.15	80	1.37	1.57	1.17	1.89	2.87	1.38	3.35	1.52
1915	1.30	1.29	1.31	79¼	1.48	1.66	1.27	1.93	3.85	1.49	3.19	1.63
1916	2.50	2.82	2.48	70⅞	2.45	2.53	2.34	3.06	4.85	2.99	5.34	2.80
1917	3.66	5.21	3.49	52⅛	3.48	3.56	3.95	6.29	8.21	6.15	7.85	4.46
1918	2.99	3.24	2.89	51⅛	3.25	3.50	2.89	4.98	6.24	4.23	7.73	3.79
1919	2.53	2.71	2.43	56¾	3.06	3.31	2.51	4.43	5.78	3.63	7.08	3.32
1920	2.99	3.20	2.99	55⅝	3.40	3.67	3.00	5.85	7.39	5.06	7.29	3.63
1921	1.07	1.96	1.89	63¾	2.77	2.98	1.96	3.54	4.57	2.74	5.83	2.69
1922	1.70	1.71	1.70	69½	2.31	2.51	1.72	3.19	4.19	2.43	4.73	2.31

basis, subject to possible shading on occasion. Bessemer steel became relatively plentiful while open-hearth continued to be held rather tightly.

BARS, SHAPES AND PLATES

Forward deliveries remained at the advanced prices of April, 2.40c for bars and 2.50c for shapes and plates. Owing to heavy production mills that sell for late deliveries became able to make somewhat better delivery promises, shortening the period to a time that would satisfy the average large buyer, already receiving good deliveries on old purchases. Delivery premiums disappeared entirely. While there has been some demand for early deliveries, enough mills kept their order books relatively clear, to take advantage of such premiums as might be obtainable, to equalize the market.

TUBULAR GOODS

The decline in oil prices caused a great decrease in drilling projects, and some operations already put under contract were abandoned. Demand upon pipe mills for line pipe and oil country goods generally became relatively light. Demand for merchant pipe kept up and mills were under constant pressure to make heavier deliveries than they could compass. The scarcity of galvanized merchant pipe was particularly pronounced, leading to not a little substitution of black. Prices of all tubular goods remained very firm. Production of pipe mills has been poor, chiefly because finishing departments, especially in cutting and threading, could not be operating in keeping with delivery demands. Some semi-finished steel was released from pipe departments, for use elsewhere.

IMPORTANT STEEL PRICE CHANGES

At the end of 1920 prices of independent steel producers had declined to Industrial Board schedule of Mar. 21, 1919, to which U. S. Steel Corporation had meanwhile adhered. These prices are given under date of Jan. 1, 1921, subsequent changes being in open market. Only the more important changes are listed.

BARS.

Jan. 1, 1921	2.35	Mar. 29	1.50
Feb. 11	2.00	May 17	1.60
April 13	2.10	July 26	1.70
June 24	2.00	Aug. 9	1.80
July 5	1.90	Aug. 25	1.90
July 26	1.75	Sept. 27	2.00
Sept. 9, 1921	1.65	Jan. 31, 1923	2.10
Sept. 27	1.60	Feb. 16.	2.20
Nov. 9	1.55	Feb. 23,	2.25
Dec. 19	1.50	April 2,	2.35
Feb. 18, 1922	**1.40**	April 27	2.40

PLATES

Jan. 1, 1921	2.65	Nov. 9	1.50
Feb. 10	2.40	Feb. 18, 1922	1.40
Feb. 17	2.25	April 5	1.50
Feb. 23	2.10	May 25	1.60
April 13	2.20	July 26	1.70
June 10	2.00	Aug. 9	1.80
July 15	1.90	Aug. 25	2.00
July 26	1.85	Jan, 19, 1923	2.10
Aug. 25, 1921	1.80	Feb. 9	2.20
Sept. 2	1.75	Feb. 23	2.25
Sept. 9	1.65	Mar. 21	2.35
Sept. 27	1.60	April 2,	2.45
Oct. 27	1.55	April 27	2.50

SHAPES

Jan. 1, 1921	2.45	Dec. 21	1.50
Feb. 11	2.25	Feb. 18, 1922	1.40
Feb. 17	2.20	Mar. 9	1.50
Feb. 28	2.10	May 25	1.60
April 13	2.20	July 26	1.70
June 24	2.00	Aug. 9	1.80
July 22	1.90	Aug. 25	2.00
July 26	1.85	Jan. 19, 1923	2.10
Aug. 25, 1921	1.80	Feb. 16	2.20
Sept. 2	1.75	Feb. 23	2.25
Sept. 9	1.70	Mar. 21	2.35
Sept. 26	1.65	April 2	2.45
Sept. 27	1.60	April 27	2.50

STEEL PIPE

Jan. 1, 1921	57½%	Sept. 16	68½%
Mar. 24	58½%	Dec. 16	71%
April 7	59½%	Aug. 23, 1922	68%
April 13	62½%	Oct. 19, 1923	66%
July 9, 1921	64½%	Feb. 3, 1923	64%
		April 19	62%

WIRE NAILS

Jan. 1, 1921	3.25	Dec. 9,	2.75
Feb. 17	3.10	Dec. 21	2.50
Mar. 4	3.00	Feb. 21, 1922	2.40
April 13	3.25	Aug. 30	2.60
June 1	3.00	Sept. 27	2.70
July 9, 1921	2.75	Feb. 1, 1923	2.80
Sept. 12	2.90	Mar. 26,	2.90
		April 20,	3.00

BLACK SHEETS

Jan. 1, 1921	4.35	Sept. 22	3.00
Feb. 11	4.15	Nov. 1	2.90
Mar. 8	4.00	Nov. 25	3.00
Mar. 17	3.85	April 7, 1922	3.15
April 13	4.00	Aug. 14	3.35
July 5	**3.50**	Feb. 23, 1923	3.60
July 26, 1921	3.25	Mar. 27,	3.75
Aug. 1	3.00	April 3,	4.00
Aug. 25	2.75	April 26	3.85

TIN PLATE

Jan. 1, 1921	7.00	Mar. 21, 1922	4.60
April 13	6.25	April 5	4.65
June 7	6.00	April 24	4.70
June 14	5.75	May 17	4.75
Aug. 1, 1921	5.25	Feb. 26, 1923	5.00
Sept. 15	5.00	Mar. 23	3.00
Sept. 19	4.75	Mar. 27,	5.50

BLUE ANNEALED SHEETS

Jan. 1, 1921	3.55	Sept. 22	2.50
Feb. 11	3.35	Nov. 1	2.25
Feb. 16	3.20	April 7, 1922	2.40
Mar. 8	3.00	Aug. 14	2.50
April 13	3.10	Sept. 20	2.60
June 10	2.90	Nov. 23,	2.50
July 6, 1921	2.65	Feb. 23, 1923	2.75
Aug. 2	2.40	Mar. 23	3.00
Aug. 16	2.25	April 3,	3.25
		April 26	3.00

GALVANIZED SHEETS

Jan. 1, 1921	5.70	Aug. 25	3.75
Feb. 11	5.55	Sept. 22	4.00
Feb. 16	5.35	Nov. 1	3.90
Feb. 24	5.25	Nov. 25	4.00
Mar. 8	**5.10**	April 7, 1922	4.15
Mar. 17	5.00	Aug. 14,	4.35
June 22	4.75	Feb. 23, 1923	4.75
July 5, 1921	4.50	Mar. 20	5.00
July 22	4.25	April 3,	5.25
Aug. 2	4.00	April 26	5.00

SHEETS AND TIN PLATES

The leading interest and a number of independents covered their regular customers for third quarter in the usual manner. Not a few sheet mills continued their recently adopted practice of holding their order books relatively clear, the result being that the offerings in black sheets were ample for the demand and premiums disappeared, the whole black sheet market becoming 3.85c. Galvanized sheets remained somewhat scarce, on account of difficulties in production. Blue annealed sheets became unable to command 3.25c except for rather early shipment, later deliveries going at the regular price of 3.00c.

WAGE SCALE AVERAGES

	Bar Iron.	Sheets.	Tin Plate.
Jan.-Feb. ..	2.25	3.30	4.80
Mar.-April .	2.35	3.40	4.80

FABRICATED STEEL

May orders for fabricated structural steel were again sharply contracted. Verbal contracts placed in the east and central west amounted to only about 50,000 tons and including some carried over from the preceding month which were not consummated in April, the total May contracts may have amounted to 75,000 tons. Many of the smaller shops, however, are not represented in the weekly reports but are nearly always taken account of by the Government, including fabricating shops at shipbuilding plants. Even with this addition, however, the actual tonnage placed in May was probably less than 110,000 tons and probably not over 100,000 tons, that is, the smallest monthly orders in the last fourteen months. Prior to May, the smallest orders in any month since the Bureau of the Census has taken over the activity of gathering sales, were in November 1922, when they amounted to a little over 110,000 tons, actual bookings. The estimated total bookings cannot be relied upon as many of the non-reporting shops do not maintain the general average.

The actual sales reported to the Government in April were a little less than 177,000 tons, upon which basis it is estimated that total orders should have amounted to 200,000 tons. Shipments against contracts, however, have not been much if any delayed. Some fabricating shops, obtaining a larger supply

Allegheny Steel
and
Allegheny Iron

SHEETS BOILER TUBES
PLATES WASHERS
STEEL CASTINGS
Hot and Cold Pressed Stampings

ALLEGHENY STEEL COMPANY
PITTSBURGH, PA.

SOLICITING AGENTS
501 Fifth Ave., New York 1436 Dime Bank Bldg., Detroit, Mich.
Steel Sales Corporation, 129 South Jefferson Street, Chicago.

of plain material from the mills and also obtaining better transportation services, increased deliveries and output, but it is notable that the largest interest, while running 100%, is still maintaining an average of about 70% of capacity. Labor difficulties have interfered only slightly with operations at fabricating shops and at structural mills.

Throughout May orders continued to grow smaller individually as well as collectively and most of the larger projects that came before the fabricators originated with city, state and national Governments. Railroads placed orders throughout the month for less than 5,000 tons of structural work, although bids were taken on 30,000 to 35,000 tons, including 22,000 tons for the Newark Bay bridge of the Central of New Jersey. No disposition was made of the Jersey Central bridge contract in May and thus far no award has been made in June (June 5th). There has been some decline in prices of delivered and erected steel building work as well as in plain material in the last four weeks, but the recession has not been sufficient to stimulate the placing of contracts in the face of the unfavorable labor situation.

April sales of fabricated steel, according to figures received by the Department of Commerce through the Bureau of the Census, in cooperation with the Structural Steel Society amounted to 80% of shop capacity as against 96% in March, 1923, and 88% in April, 1922. Total sales of 176,954 tons were reported for April by firms with a capacity of 220,965 tons per month.

Tonnage booked each month by 171 identical firms, with a capacity of 226,625 tons per month, is shown below, together with the per cent. of shop capacity represented by these bookings. For comparative purposes, the figures are also prorated to obtain an estimated total for the United States on a capacity of 250,000 tons per month.

1922	Actual Tonnage booked	per cent. of capacity	Estimated Total bookings
April	199,494	88	220,000
May	183,089	81	202,500
June	167,641	74	185,000
July	155,298	69	172,500
August ..	154,676	68	170,000
September	145,097	64	160,000
October .	131,303	58	145,000
November	110,188	49	122,500
December	136,168	60	150,000
1923—			
January .	170,190	75	197,500
February	182,056*	80	200,000
March ..	216,647†	96	237,500
April	176,954‡	80	200,000

*Reported by 170 firms with a capacity of 226,425 tons.

†Reported by 167 firms with a capacity of 225,425 tons.

‡Reported by 150 firms with a capacity of 220,965 tons.

Percentage of fabricated orders to total shop capacity.

	1922	1921	1920	1919	1918	1917
Jan.	40%	18%	75%	12%	53%	61½
Feb.	43½	14	95	12½	55½	59
Mar.	77	29	83½	17½	47	68
April	89	31	68	24½	64	61
May	81	28	61½	49	60	56½
June	73	37	50	65	56	47½
July	69	33½	50	74	116½	41½
Aug.	68	33	40	78½	57	38
Sept.	64	48	43	78½	60	29
Oct.	58	54	25½	77½	43	61½
Nov.	49	55	27½	69	27	77
Dec.	58	40	26	85	29	114
Av.	64.2	35	53¾	53½	55½	59½

1923—	
January	75
February	80
March	96
April	80

FERRO-ALLOYS

Business in ferro alloys throughout May was light. The demand for ferromanganese was confined almost entirely to small lots for shipment over the second half of the year which was met at $125 seaboard for British and at the same equivalent for domestic at furnaces. Most of the sales were for small lots running up to 100 tons but one or two lots of 150 to 300 tons were disposed of for the last quarter. It is understood that one interest has reduced its asking price to $120 for the last quarter but other importers are asking $125 for any shipment over the last half of the year. Even single car lots for prompt shipment can be bought at $125 indicating an easier tone. In the interior domestic producers apparently, are a little more anxious for business. Fair deliveries are being made against contracts.

Spiegeleisen has been quiet throughout the month and the tendency has been toward slightly lower prices as a result of smaller consumption. One large consumer that had expected to come into the market for shipment over the fourth

quarter of the year it is now determined will have sufficient alloy to meet requirements over the whole of the year. Sales by the largest domestic interest are being made at $45.00 furnace for 50 to 100 ton lots and $47.50 for single car lots for shipment over the last half of the year. Fair deliveries are being made against contracts. There is less pressure for small lots for prompt shipment and it would be difficult to make sales of foreign alloy at $50.00 seaboard.

Buying of 50% ferro-silicon has been confined to small lots. Most of the output is being delivered against contracts but it is notable that there is less demand for small lots for filling-in contracts. The market, however, remains firm at $95.00 delivered although it may be possible to shade this price to $92.50 per ton in some instances.

Imports of manganese ore in the first two months of this year were only 5,465 tons of which 829 tons arived in January. Imports of ferromanganese in the first two months were 11,959 tons which is far below the monthly arrivals in 1922.

SCRAP

Scrap prices continued declining in all districts, having rounded the turn late in March. Not a little buying disposition was uncovered by the declines. The scrap market was constantly seeking equalization but it had to go down some distance to find it. Roughly speaking prices did not go below those ruling at the beginning of the year, and as 1922 saw heavy advances scrap is still not especially cheap.

IRON AND STEEL SCRAP PRICES

	Heavy melting steel.			No. 1 cast.	
	Pittsb.,	Phila.,	Chic.	Pitts.	Chic.*
Jan., '22	14.67	11.45	11.70	16.60	12.75
Feb. ...	14.25	11.50	11.75	16.25	12.80
Mar. ...	25.35	11.75	12.50	16.25	13.50
April ..	16.60	14.25	13.80	17.25	14.70
May ...	17.25	14.70	14.95	18.25	15.80
June ...	17.25	14.50	14.80	18.60	15.50
July ...	16.85	14.40	15.40	19.25	16.00
Aug. ...	17.45	14.75	16.00	19.35	17.25
Sept. ..	20.00	17.00	17.50	21.75	18.60
Oct. ...	21.00	18.35	18.65	24.00	19.60
Nov. ...	20.50	16.65	17.60	23.20	18.50
Dec. ...	20.40	16.70	17.50	22.75	18.35
Year ..	17.63	14.67	15.18	19.46	16.11
Jan., '23	22.00	20.85	19.30	23.50	20.40
Feb. ...	23.35	21.10	20.00	24.15	22.50
Mar. ...	25.30	35.25	23.45	26.25	24.75
April ..	25.00	24.00	23.25	27.15	23.20
May ...	22.50	20.25	19.50	26.25	20.75

* Per net ton.

COAL

Changes in the coal trade extensively anticipated for the past month, have not materialized, and no pronounced change in general market conditions is noted in any section of the country. It may be, on the contrary, that the indifference of the average industrial buyer is just a little more marked than it has been, while on the other hand, several channels allowing an increased movement of coal, have lately been opened up. One of these is shipping on the Great Lakes which was delayed this year until nearly May 1st, because of ice in the lakes, while the other is in the New England territory, where the railroads have lifted the embargoes applying against bituminous coal.

Notwithstanding the latter condition, however, a temporary improvement in the soft coal market there seems to have disappeared for the time being, and business in that section is said to be slower now than it has been for a long time past. Activity in the bituminous trade there was said to be almost at a standstill during the last week in May, the general slowing up in the textile business being held responsible to some extent, and even the general cutting of prices on the Pocahontas and New River coals standing on cars there has failed to arouse any interest.

Otherwise, however, there is a good demand for these high-grade smokeless coals in nearly all other markets as reflected in well stabilized and slowly advancing prices. Improved market conditions at the Hampton Roads' piers are responsible for this increase, and the present growth in export demand is being distinctly felt inland. Despite a heavy movement of these coals to tidewater, there is a scarcity of it in the seaboard markets, and quotations on cargoes for export are about $6.50 to $6.75 per gross ton f.o.b. piers for Pool 1, with Pool 2 at $6.40 to $6.50 gross. For inland shipment, smokeless coal shippers are obtaining about $4.00 to $4.25 net ton at the mines for these same grades.

In the middle western trade, some factors are inclined to be pessimistic because of the inactive steam coal demand and the overabundance of screenings. This, however, has been brought about by the heavy railroad storage of sized coal, and sellers are in-

clined to believe that once the industrials run out of supplies, the present surplus of screenings will practically disappear. In the northwest territory, the industrial demand for steam coal is the outstanding feature, and the movement of coal to that market from the Lake Erie docks has been well maintained Stocks of all kinds of coal on the Duluth and Superior docks are estimated to aggregate over 1,000,000 tons as compared with only 300,000 tons when navigation opened a month ago. A peculiar situation in that territory is that the demand for anthracite domestic coal is comparatively light, due probably to the fact that there was no fifty-cent reduction in price with the beginning of the new season, while in eastern territories the retail dealers cannot begin to get enough anthracite coal to keep up with the demand.

The lifting of embargoes on the New England railroads did not stimulate the demand for the Pennsylvania coals from that quarter, although there is doubtless more coal moving in that direction. The rush of spot buying that was anticipated by some operators and wholesalers—on the strength of which they attempted to raise their prices—did not develop and prices are therefore no stronger in the Pennsylvania bituminous fields. That more coal moving to that territory is in evidence is probably due to the fact that coal was started forward on regular contracts as soon as the restrictions were lifted, and also because many consumers had placed spot orders some time ago for immediate shipment, and were waiting for permits. For the most part, the consumers throughout the east seem to be well supplied with coal, and the upward turn in the business so far has not been such as to arouse much enthusiasm among the wholesalers and operators. Conditions are still such that only the mines producing the best prades of coal find an outlet for their output, and mines producing inferior grades remain shut down because of the unprofitable prices to be obtained.

Current spot quotations on the Pennsylvania coals, per net ton, f.o.b. mines, are about as follows: Pool 1, $3.50 to $3.75; Pool 71, $2.70 to $2.85; Pool 9, $2.40 to $2.55; Pool 10, $2.00 to $2.25, and Pool 11, $1.85 to $2.10. There is a marked change at the New York piers where the average daily supply of bituminous coal has decreased to about 2,100 cars as compared with over 4,200 cars only a month ago, shippers now refraining from sending unsold coal to the piers. New York pier quotations on a basis of gross tons, are about $5.25 to $5.50 for Pool 9, and from $4.50 to $5.00 for Pool 10. Cheaper grades run from $4.00 to $4.50 gross and some undesirable grades in the "distress" class are sold as low as $3.50 f.o.b. piers.

CONNELLSVILLE COKE

Prices for Connellsville coke for spot shipment continued their decline in May, furnace coke reaching $5.00 by the middle of the month. Early in the month a little contracting for third quarter was done at $6.00, but this seems to have been only by consumers particularly well positioned and willing to take a chance on the market going lower. Other consumers held off and at the end of the month the contract market was weak, with a possibility that the typical merchant furnace would not contract at all for the quarter, but would buy by month or for shorter periods. Most furnacemen could not convince themselves that they should contract at $6.00 when day after day spot coke could be bought at $5.00. Of course, spot lots are not as satisfactory to the furnaceman as he does not wish to mix cokes, but the operator is certainly no better off with $5.00 spot sales than $5.00 contract sales.

EXPANSION OF THE CANNING INDUSTRY

How rapidly the canning industry has expanded in this country in recent years and the strides that have been made can be seen in the fact that all the leading can manufacturers of this country this year will use more tin plate than at any previous time in their history.

In this connection it is estimated that the American Can Company, the largest can making concern, will use considerably more than 1,000,000 boxes of tin plate in excess of its requirements of last year, and the other smaller can manufacturing companies also will consume larger tonnages of tin plate than in the past.

EXPORTS OF IRON AND STEEL PRODUCTS FROM THE U. S.

Value of tonnage and non-tonnage.

	*1923	*1922	1921
Feb.	14,865,590	12,950,603	101,205,061
Mar.	14,543,155	18,836,718	67,870,739
April	.....	17,559,081	49,609,605
May	.....	17,749,475	41,365,886
June	.....	18,649,816	39,975,035
July	.....	14,611,858	27,639,787
Aug.	.....	13,963,749	27,647,816
Sept.	.....	14,380,851	26,740,228
Oct.	.....	14,626,411	29,706,437
Nov.	.....	14,249,434	28,543,142
Dec.	.....	16,668,116	29,502,448

* Excluding machinery.

1922..	$ 188,841,433	1916..	$871,372,322
1921..	607,427,146	1915..	390,897,123
1920..	1,112,904,802	1914..	199,861,684
1919..	968,575,142	1913..	293,934,160
1918..	1,035,291,736	1912..	289,128,420
1917..	1,240,984,979	1911..	249,656,411

Tonnage Lines.

(Gross tons.)

	1923	1922	1921	1920
Jan.	123,190	160,920	547,394	333,601
Feb.	133,902	133,975	393,328	308,185
Mar.	177,471	198,830	230,635	417,216
April	.....	198,830	162,592	395,120
May	.....	230,062	104,072	420,359
June	.....	212,295	119,081	402,707
July	.....	157,169	86,523	458,866
Aug.	.....	145,640	75,827	431,484
Sept.	.....	129,475	95,169	409,200
Oct.	.....	132,924	106,582	452,015
Nov.	.....	127,782	122,290	434,297
Dec.	.....	150,170	134,415	498,765

Yearly totals.

1922	1,986,297	1916	6,105,881
1921	2,213,042	1915	3,532,606
1920	4,961,851	1914	1,549,554
1919	4,239,837	1913	2,745,535
1918	5,338,037	1912	2,947,596
1917	6,441,760	1911	2,187,724

IMPORTS OF IRON ORE INTO THE UNITED STATES.

	1923	1922	1921	1920
Jan.	205,532	19,433	82,424	88,881
Feb.	.....	10,016	47,466	100,105
Mar.	.....	12,013	26,483	108,643
April	.....	2,710	35,645	88,670
May	.....	29,707	58,704	103,325
June	.....	133,817	8,424	104,364
July	.....	166,711	7,040	28,846
Aug.	.....	160,173	24,570	174,169
Sept.	.....	127,838	4,954	73,675
Oct.	.....	*123,207	5,838	141,026
Nov.	.....	165,648	12,065	139,854
Dec.	.....	167,221	2,155	117,898

Yearly totals.

1922	1,140,463	1916	1 325,736
1921	315,768	1915	1,341,281
1920	1,273,456	1914	1,350,588
1919	476,461	1913	2,594,770
1918	787,468	1912	2,104,576
1917	971,663	1911	1,811,732

* Sept. 22 to Oct. 31.

BITUMINOUS COAL PRODUCTION

(Net tons of 2,000 lbs.)

	1923.	1922.	1921.
Jan. ...	50,178,000	37,604,000	40,270,000
Feb. ...	42,160,000	40,980,000	30,851,000
Mar. ...	46,802,000	50,167,000	30,392,000
April ..	42,564,000	15,700,000	27,553,000
May ...	44,000,000	20,290,000	33,330,000
June ...	.....	22,309,000	33,896,000
July ...	.....	17,003,000	30,385,000
Aug. ...	.....	27,358,000	34,538,000
Sept. ..	.....	39,510,000	35,127,000
Oct. ...	.....	45,141,000	43,733,000
Nov. ...	.....	45,303,000	36,020,000
Dec. ...	.....	44,500,000	30,975,000
Total ...	.....	405,944,000	407,000,000

CONNELLSVILLE COKE.

Spot for prompt, per net ton f.o.b. ovens.

	— Furnace —			— Foundry —		
	1923.	1922.	1921.	1923.	1922.	1921
Jan.	8.30	2.85	5.10	9.25	4.00	6.75
Feb.	7.30	3.10	4.80	8.50	4.15	6.15
Mar.	7.35	3.38	4.43	8.60	4.50	5.63
Apr.	6.25	4.44	3.60	7.80	5.21	5.15
May	5.25	6.50	3.40	6.50	6.75	5.10
June	....	7.50	3.12	....	7.85	4.67
July	....	11.35	2.95	....	11.70	4.20
Aug.	....	13.35	2.95	....	15.00	4.20
Sept.	....	11.50	3.26	....	13.25	4.34
Oct.	....	9.70	3.35	....	11.90	4.40
Nov.	....	7.35	3.15	....	8.70	4.17
Dec.	....	7.75	2.90	....	8.15	4.00
Av.	....	7.40	3.58	....	8.43	4.90

BRITISH IRON AND STEEL OUTPUT.

Pig Iron—(Gross tons).

	1923	1922	1921
Jan.	567,900	288,000	642,100
Feb.	543,400	300,100	463,600
March ...	633,600	389,800	386,000
April	652,200	394,300	60,300
May	.....	407,900	13,600
June	.....	369,200	800
July	.....	399,100	10,200
Aug.	.....	411,700	94,200
Sept.	.....	430,300	158,300
Oct.	.....	481,500	235,500
Nov.	.....	493,900	271,800
Dec.	.....	533,700	275,000
Total ...	.....	4,899,500	2,611,400

Steel Ingots and Castings.

	1923	1922	1921
Jan.	624,300	327,500	493,400
Feb.	707,100	418,800	483,500
March ...	802,500	549,400	359,100
April	749,000	404,200	70,600
May	.....	462,300	5,700
June	.....	400,200	2,700
July	.....	473,100	117,200
Aug.	.....	520,800	434,100
Sept.	.....	555,900	429,300
Oct.	.....	565,200	405,400
Nov.	.....	600,800	442,800
Dec.	.....	546,100	381,000
Total ...	.....	5,831,900	3,624,800

COPPER IN MAY

The downward movement in the price of copper which began with April was accelerated in May. The decline in April amounted to ¾c a pound so far as producers are concerned and the drop in May was 1¾c pound, so that since the peak prices were reached there has been a break of 2½c a pound. At the close of May producers were holding electrolytic at 14.87½c delivered, while consumers were offering 14.75c for electrolytic to be shipped over the third quarter of the year. Foreign as well as domestic consumers were provokingly small buyers of copper and at the beginning of June there was apparently small inclination to depart from this conservative position.

Statistically as well as commercially the situation in the last two months has been more in favor of consumers and less satisfactory to producers than in many months. In fact preliminary estimates of deliveries into domestic and foreign consumption in May are not much if any over 150,000,000 pounds, whereas production of both smelted and refined copper is estimated very conservatively at 190,000,000 pounds, which would indicate an increase of 40,000,000 pounds in producers' stocks during the month of May alone.

Output of the mines in the United States, as well as in South America, Mexico, Alaska and Canada, probably was slightly less than either smelter or refinery output. It is estimated that May mine output by domestic and foreign mines was fully 185,000,000 pounds, possibly more, against a mine production of 182,000,000 pounds in April, 187,000,000 pounds in March, 158,000,000 pounds in February, and approximately 170,000,000 pounds in January. Thus in the first five months of this year mine output of copper in North and South America has been about 885,000,000 pounds in round numbers.

Exports of copper in May are estimated at 40,000,000 pounds. The April outgo was approximately 58,000,000 pounds and in the first quarter of the year total exports were 173,100,000 pounds, made up of 63,500,000 pounds in March, 43,800,000 pounds in February, and 65,863,000 pounds in January. These figures, however, include wrought as well as unwrought copper. The exports of finished products alone were 33,000,000 pounds or possibly more in the first five months, whereas the total exports in the first five months were approximately 271,100,000 pounds, indicating net exports of 238,100,000 pounds of unwrought copper.

In the last two months deliveries to domestic consumers have fallen off considerably. It is estimated that in April and May shipments to home consumers have averaged 210,000,000 pounds, against 390,000,000 pounds in the first quarter or a total of 600,000,000 pounds in the first five months. Adding exports of 238,000,000 pounds gives total deliveries in the first five months of 838,000,000 pounds. Assuming that 50,000,000 pounds were exported from South America in addition to the exports from the United States would give a total delivery since the first of January of 888,000,000 pounds, which total is about the same mine production. In other words if smelter and refinery output have been approximately the same as mine output, stocks at the beginning of June were about the same at the beginning of the year.

According to the producers figures there was a decrease of 70,000,000 pounds in stocks in the first quarter of the year, which, of course, resulted from exports from South America as well as from the United States. It is quite evident that

COPPER IN MAY

Day	New York — Lake.	New York — Electro.	London — Cast.	London — Stand. £ s. d.	London — Electro. £ s. d.
1	16.62½	16.25	16.12½	69 15 0	79 5 0
2	16.62½	16.25	16.12½	69 15 0	79 5 0
3	16.75	16.37½	16.25	70 17 6	79 10 0
4	16.75	16.37½	16.25	70 7 6	79 10 0
7	16.75	16.37½	16.25	70 10 0	79 10 0
8	16.68¾	16.25	16.12½	69 12 6	79 5 0
9	16.62½	16.00	15.87½	68 10 0	79 0 0
10	16.62½	16.00	15.87½	68 5 0	78 15 0
11	16.50	15.80	15.75	67 7 6	78 0 0
14	16.25	15.62½	15.50	65 17 6	76 0 0
15	16.00	15.37½	15.25	65 7 6	75 0 0
16	15.75	15.25	15.00	64 12 6	75 0 0
17	15.75	15.25	15.00	65 15 0	75 10 0
18	15.87½	15.50	15.25	67 15 0	77 0 0
21	15.87½	15.50	15.25	Holiday	Holiday
22	15.87½	15.50	15.25	67 10 0	76 0 0
23	15.87½	15.37½	15.25	66 17 6	76 0 0
24	15.75	15.25	15.00	66 17 6	75 10 0
25	15.56¼	15.12½	14.87½	65 15 0	74 10 0
28	15.50	14.87½	14.62½	65 10 0	73 10 0
29	15.37½	14.75	14.50	65 2 6	73 0 0
30	Holiday		.....	65 12 6	72 10 0
31	15.37½	14.75	14.50	66 10 0	73 0 0
High	16.75	16.37½	16.25	70 17 6	79 10 0
Low	15.37½	14.75	14.50	64 12 6	72 10 0
Aver. ...	16.12½	15.627	15.45	67 9 2	76 11 4

in the last two months the statistical as well as commercial position has turned against producers and this fact is reflected in the drop of 2½c a pound in selling prices since March when peak prices were established. The smaller buying of both domestic and foreign consumers in the last two months, of course, has also been responsible for the drop in prices.

It is assumed that more of the Chile copper output has been coming to the United States in the last two months than in the first quarter of the year but it is understood that considerable of this South American copper is still being exported, as liberal foreign sales of Chile copper were made when the market ranged between 14.00c and 15.00c a pound for delivery in July, August and September. Just what proportion of this copper was sold for export and for domestic consumption is not given out.

It may be claimed that the deliveries of copper to domestic consumers in the last two months, that is, in April and May, have exceeded an average of 105,000,000 pounds a month, but even so the indication is that stocks of refined copper today are not greatly different from what they were at the beginning of the year, except those held by the Export Association. Stocks of refined copper at the beginning of June may be estimated approximately 250,000,000 to 260,000,000 pounds.

Imports of copper in February were a little less than 38,500,000 pounds, against approximately 38,000,000 pounds in January. The Government reports of imports are still far behind but the indication is that in the last two or three months they have increased rather than decreased, as production in South America has been increasing under the stimulus of high prices and there is an absence of the labor problem which troubles U. S. producers.

Today the Copper Export Association has very little copper in stock. Its surplus had been reduced to 15,000,000 pounds on May 10th. In the first three months of the year the Association sold 40,300,000 pounds and in April and the first ten days of May it disposed of 6,768,000 pounds or a total since the first of January to that date of 47,068,000 pounds.

Dallas Brass & Copper Co.

Manufacturers of

Brass and Copper Products

Prompt Mill Deliveries

Prompt Shipments From Warehouses

CLEVELAND CHICAGO DETROIT

Throughout May second hands were anxious sellers of all kinds of copper, but especially of electrolytic. In the competition for business which developed between first and second hands, prices of Lake copper receded from 16.62½c to 15.25c delivered. Electrolytic fell from 16.25c refinery to 14.75c refinery while casting copper receded from 16.12½c to 14.50c refinery At the close the market was slightly firmer at the latter prices.

WATERBURY COPPER AVERAGES

	1923.	1922.	1921.	1920.	1919.
Jan. ..	14.87½	13.87½	13.75	19.50	23.00
Feb. ..	15.75	13.37½	13.50	19.12½	18.00
Mar. ..	17.25	13.12½	12.62½	18.87½	15.50
Apr. ..	17.12½	13.00	12.75	19.12½	15.50
May ..	16.12½	13.37½	13.12½	19.00	16.37½
June ..	.....	14.00	13.12½	18.50	17.75
July ..	.....	14.12½	12.87½	19.00	22.00
Aug. ..	.....	14.12½	12.25	18.75	23.00
Sept. ..	.....	14.25	12.37½	18.75	22.50
Oct. ..	.....	14.25	13.12½	16.87½	22.25
Nov. ..	.....	14.12½	13.37½	15.25	21.00
Dec. ..	.....	14.50	13.87½	14.25	18.75
Av. ...	.....	13.84	13.06	18.06	19.63½

Annual Averages.

1918.....	24.75	1913.....	15.83
1917.....	30.11	1912.....	16.71
1916.....	28.85	1911.....	12.75
1915.....	18.94	1910.....	13.13
1914.....	13.91	1909.....	13.41

EXPORTS OF COPPER.

As compiled by the New York Metal Exchange from Custom House returns, in tons of 2,240 lbs.

	1923.	1922.	1921.	1920.
Jan.	23,409	24,679	24,068	21,804
Feb.	21,643	22,910	27,748	25,700
Mar.	28,284	35,851	17,151	39,236
April	25,808	28,367	18,397	28,644
May	.....	27,894	15,736	37,090
June	.....	29,191	22,339	25,581
July	.....	28,584	22,774	20,430
Aug.	.....	26,889	19,110	20,121
Sept.	.....	25,144	28,343	10,751
Oct.	.....	22,681	22,934	10,073
Nov.	.....	24,727	32,407	16,954
Dec.	.....	22,201	27,394	18,304
Total	.....	319,118	278,401	274,688

Annual Totals.

1919	227,169		
1918	328,844	1913	382,810
1917	493,256	1912	327,965
1916	327,310	1911	336,801
1915	270,704	1910	301,935
1914	360,229	1909	301,657

LAKE COPPER PRICES

Average prices in New York

	1923.	1922.	1921.	1920.	1919.
Jan. ...	14.92	13.76	13.53	19.76	21.75
Feb. ...	15.76	13.24	13.33	19.09	17.87
Mar. ...	17.26	13.03	12.58	18.87	15.48
April ..	17.13	12.91	12.89	19.05	15.73
May ...	16.12	13.42	13.12	18.85	16.30
June ...	.....	13.97	13.04	18.55	17.93
July ...	.....	14.07	12.75	18.83	22.08
Aug. ...	.....	14.09	12.11	18.72	22.96
Sept. ...	.....	14.19	12.23	18.53	22.48
Oct.	.....	14.16	13.01	16.87	21.94
Nov. ...	.....	14.07	13.30	14.97	20.49
Dec. ...	.....	14.46	13.80	14.01	18.88
Average	.....	13.78	12.98	18.01	19.49

Annual Averages.

1918	24.68	1913	15.70
1917	29.18	1912	16.58
1916	28.17	1911	12.71
1915	17.64	1910	13.12
1914	13.61	1909	13.39

ELECTROLYTIC COPPER PRICES

Average prices in New York

	1923.	1922.	1921.	1920.	1919.
Jan. ...	14.66	13.60	12.85	19.02	20.00
Feb. ...	15.50	12.97	12.79	18.61	16.91
Mar. ...	16.95	12.84	12.23	18.36	15.01
April ..	16.81	12.71	12.54	18.54	15.40
May ...	15.63	13.29	12.83	18.28	16.01
June ...	.....	13.71	12.76	17.97	17.65
July ...	.....	13.90	12.35	18.61	21.71
Aug. ...	.....	13.96	11.76	18.44	22.22
Sept. ...	.....	13.88	12.10	18.04	21.95
Oct.	.....	13.80	12.75	16.30	21.50
Nov. ...	.....	13.79	13.16	14.39	19.96
Dec. ...	.....	14.22	13.67	13.48	18.48
Average	.....	13.55	12.65	17.50	18.90

Annual Averages.

1918	24.68	1913	15.52
1917	29.19	1912	16.48
1916	28.46	1911	12.55
1915	17.47	1910	12.88
1914	13.31	1909	13.11

CASTING COPPER PRICES

Average prices in New York

	1923.	1922.	1921.	1920.	1919.
Jan. ...	14.30	12.96	12.61	18.81	18.48
Feb. ...	15.15	12.61	12.45	18.21	16.45
Mar. ...	16.64	12.54	11.83	18.11	14.82
April ..	16.60	12.46	11.82	18.40	15.06
May ...	15.45	12.84	12.24	18.16	15.49
June ...	.....	13.33	12.08	17.65	17.17
July ...	.....	13.34	11.68	18.12	21.10
Aug. ...	.....	13.43	11.43	18.00	21.71
Sept. ...	.....	13.39	11.76	17.76	21.28
Oct.	.....	13.39	12.43	16.01	20.66
Nov. ...	.....	13.40	12.53	14.12	19.37
Dec. ...	.....	13.81	12.97	13.12	18.21
Average	.....	13.13	12.15	17.21	18.32

Annual Averages.

1918	24.68	1914	13.18
1917	27.64	1913	15.33
1916	26.51	1912	16.29
1915	16.76	1911	12.42

COPPER AND BRASS PRODUCTS

A belated revision in prices of finished copper and brass products was made by the American Brass Company about the middle of May when selling prices were reduced 1.00c to 1¼c a pound on all rolled products. A decline of 1⅜c a pound on wire was postponed until several days later. The largest interest reported on Friday, May 18th, a copper wire price of 18.50c a pound against a previous price of 19.87½c. Some of the other wire drawers, however, had previously reduced prices ¼c to ½c a pound and upon the reduction by the American Brass Company to 18.50c a pound these sellers reduced their asking price to 18.25c for copper wire and 17.25c for black rods.

The price of seamless tubing, copper and brass, was reduced 1.00c a pound by the American Brass Company and this was concurred in by independent manufacturers. The reduction in other rolled copper and brass products was 1¼c a pound with the exception of commercial bronze and gilding wire which was reduced 1¾c a pound. Yellow metal sheathing and nails were reduced 1½c a pound and nickel silver declined ¾c a pound.

The decline in the price of unwrought copper continued throughout May until the drop from the highest point early in the year was 2.62½c a pound. The differential therefore between wrought and unwrought material was sufficient to overcome the reluctance of manufacturers to reduce prices because of the higher cost of production resulting from increase in labor wages.

The demand from consumers for rolled, drawn and cast products fell off steadily throughout the month, buying being confined to actual requirements for immediate use. Shipments against contracts, however, continued heavy and consumers while not entering into new contracts were anxious to have deliveries made promptly against contracts. The largest interest, however, in April had fallen behind in deliveries against contracts four to six weeks and the decrease in current buying gave them an opportunity to reduce somewhat unfilled obligations.

Many of the large consumers of wire

BRASS AND COPPER PRODUCTS.

The last two price lists issued follow:

COPPER PRODUCTS.

	Mar. 29	May 15
Sheet copper	25½	24¼
Copper bottoms	34	32¾
Copper in rolls	24	22¾
Brush copper	26½	25¼
Sawed copper	26¼	25
Drawn copper shapes	24	22¾
Commutator copper	25¼	24

BRASS PRODUCTS.

Sheet Metal.

High brass	21¾	20½
Low brass	23½	22¼
Rich low brass	24	22¾
Commercial bronze	25⅜	24⅛
Common gilding	25⅜	24⅛
Best spring drawing and spinning brass	22¾	21½

Wire.

High brass	22¼	21
Low brass	24	22¾
Commercial bronze and gilding	25⅞	24⅝
Best spring and brazing brass	23¼	22

Rods.

High brass (free turning)	20	18¾
Low brass	24¼	23
Commercial bronze	26⅛	24⅞

Brazed Tubes.

Brass	29¾	28½
Copper and commercial bronze	35⅛	33⅞
Open seam brass	29¾	28½
Open seam copper and commercial bronze	35⅛	33⅞

Seamless Tubes.

	Mar. 22	May 15
High brass	26½	25½
Low brass	28½	27½
Commercial bronze	29½	28½
Copper	28	27

NICKEL SILVER.

	Mar. 29	May 15
10% grade A sheet metal	28¾	27¾
15% " " " "	30	29¼
18% " " " "	31	30¼
25% " " " "	41¼	40½
5% grade B sheet metal	26¾	25¾
10% " " " "	28	27¼
12% " " " "	29	28
15% " " " "	29½	28¾
18% " " " "	30½	29¾
25% " " " "	40¾	40
5% wire and rod	28¾	27¾
10% " " "	31½	30¾
12% " " "	33¼	32¼
15% " " "	35	34¼
18% " " "	38	37¼

COPPER CONSUMPTION IN U. S.

269,000,000 Pounds of Copper Used Yearly in Electric Industry

Copper consumption of United States in 1922 is estimated by American Bureau of Metal Statistics at 1,091,397,000 pounds compared with 904,753,000 in 1921, 1,346,090,000 in 1920 and 1,224,710,000 in 1919.

This consumption was divided as follows in 1,000 pounds:

	1922	1921	1920	1919
*Electrical goods	269,000	260,000	240,000	284,000
Telephone and telegraph	120,000	108,000	122,000	81,000
†Light and power lines	97,500	66,000	59,000	54,500
Wire and rods	91,000	77,000	107,000	90,000
‡Automobiles	144,000	92,000	120,000	97,000
Auto brake lining	1,600	1,400	1,150	900
§Buildings	73,900	44,300	69,000	61,200
Locomotives	5,030	5,890	11,860	10,350
Railway cars	7,470	5,480	8,570	16,770
Air brakes	5,600	3,350	5,600	5,900
§Ships, commercial	6,180	38,000	62,000	102,000
§Ships, naval	170	9,900	14,100	22,500
Bearings and bushings	42,000	28,000	84,000	80,000
Valve and pipe fittings	20,000	11,500	25,000	25,000
Ammunition	14,500	16,500	23,400	23,000
Lubricators	5,500	1,600	6,000	6,300
Condensers	4,800	4,000	6,000	6,000
Fire-fighting apparatus	3,100	2,300	4,000	3,400
Agricultural machinery	500	720	1,000	1,000
Cash registers	1,000	400	1,340	1,300
Copper bearing stl.	1,900	1,700	2,300	2,300
Coinage	475	2,390	3,150	2,075
‖Other uses	95,000	72,000	105,200	90,250
Manufactures for export	81,172	51,783	164,420	157,965
Totals	1,091,397	904,753	1,346,090	1,224,710

* Generators, motors, switchboards, lamps, etc., exclusive of telephone and telegraph purposes.

† Outside wiring only; does not include trolley lines.

‡ Does not include electrical manufactures.

§ Does not include electrical generators, motors, etc.

‖ Includes rods, wire, sheet, tubes and all similar fabrications of copper for export.

and other copper and brass products early in the year placed orders sufficient to meet their requirements well into the third quarter of the year. Most of the copper and brass orders originating with the building trade were not affected by the decrease in building activity as finishing operations were but little affected by the strikes among brickayers and allied building groups. Most of the departments of the brass and copper mills in the Connecticut Valley and in the territory tributary to New York as well as in the central west continued to operate at rates ranging from 75% to 100% of capacity.

IMPORTS OF COPPER.

As compiled by the New York Metal Exchange and reduced to fine copper, in tons of 2,240 lbs.

	1923.	1922.	1921.	1920.
Jan.	16,500	5,500	17,500	16,500
Feb.	17,000	10,000	18,000	20,000
Mar.	.....	15,000	10,000	17,500
April	.....	16,000	15,500	12,000
May	.....	12,000	7,000	23,000
June	.....	19,000	9,000	22,000
July	.....	19,500	14,000	12,000
Aug.	.....	21,000	10,000	13,000
Sept.	.....	25,000	10,500	12,500
Oct.	.....	18,000	14,500	14,500
Nov.	.....	33,000	11,000	16,000
Dec.	.....	26,000	14,000	17,500
Totals	.....	220,000	151,000	196,500

ZINC IN MAY

The net decline in the price of slab zinc during May was not as great as during April, but the month closed with prime Western at 6.45c E. St. Louis about 35.00c per 100 lbs. lower than at its beginning.

Consuming demand throughout the month continued too light to definitely rally the market.

There was an upward turn during the first week that carried the price from 6.80c up to 7.12½c E. St. Louis basis, but this was caused mainly by operators buying and lacked support from consumers, and the market quickly subsided again to an even lower level than before.

Again during the third week on a tightening up of producers quotations, a temporary advance from 6.60c to 6.75c was seen, but once more, on absence of active buying, the market relapsed.

Nevertheless the immediate position, as shown by the American Zinc Institute figures of May 1st, proved even better than had been anticipated. Stocks in smelters' hands decreased during April 1,045 tons, being only 897 tons on April 30th. The total shipments in April were 47,911 tons, of which over 47,000 were for domestic account (a remarkable showing for domestic trade) against an output of 46,866 tons.

But the falling off in new business during April and May indicates a decided lessening of domestic consuming operations, and it seems certain that the output also will have to be materially decreased to correspond.

There was no buying of zinc for export during May—the prospects of this have definitely vanished. On the contrary the London price at the end of May was at a point that would have permitted reshipment to this country of zinc of American make, provided the original documents for re-entry free of duty had been available.

LEAD AND ZINC PRICES IN MAY

Day	LEAD New York *	LEAD St. Louis †	LEAD London † £ s d	ZINC New York §	ZINC St. Louis §	ZINC London £ s d
1	7.75	7.95	7.60 25 12 6	7.15	6.80	32 2 6
2	7.75	7.90	7.60 25 15 0	7.22½	6.87½	31 17 6
3	7.50	7.75	7.52½ 25 15 0	7.30	6.95	31 15 0
4	7.50	7.55	7.40 25 7 6	7.42½	7.07½	31 15 0
5	7.50	7.55	7.40	....	....	.. .. .
7	7.50	7.55	7.20 25 0 0	7.47½	7.12½	32 2 6
8	7.50	7.50	7.17½ 24 12 6	7.40	7.05	31 15 0
9	7.25	7.50	7.15 24 10 0	7.17½	6.82½	31 0 0
10	7.25	7.27½	6.92½ 24 12 6	7.07½	6.72½	30 17 6
11	7.25	7.27½	6.92½ 25 0 0	7.00	6.65	30 0 0
12	7.25	7.27½	6.92½	....	....	.. .. .
14	7.25	7.27½	6.92½ 25 2 6	6.97½	6.62½	29 15 0
15	7.25	7.25	6.90 25 2 6	6.95	6.60	29 10 0
16	7.25	7.25	6.92½ 26 5 0	6.97½	6.62½	30 2 6
17	7.25	7.25	6.97½ 26 7 6	7.02½	6.67½	31 5 0
18	7.25	7.30	6.97½ 26 7 6	7.05	6.70	31 17 6
19	7.25	7.30	6.97½	....	....	.. .. .
21	7.25	7.30	7.05 Holiday	7.07½	6.72½	Holiday
22	7.25	7.30	7.10 26 5 0	7.10	6.75	31 10 0
23	7.25	7.37½	7.12½ 26 5 0	7.00	6.65	30 12 6
24	7.25	7.35	7.10 26 5 0	6.87½	6.52½	30 15 0
25	7.25	7.35	7.07½ 26 2 6	6.85	6.50	30 10 0
26	7.25	7.35	7.07½	....	....	.. .. .
28	7.25	7.30	7.02½ 25 17 6	6.80	6.45	30 12 6
29	7.25	7.30	7.02½ 25 17 6	6.75	6.40	30 15 0
30		Holiday	25 12 6		Holiday	31 5 0
31	7.25	7.30	7.02½ 25 15 0	6.80	6.45	31 10 0
High	7.75	8.00	7.60 26 7 6	7.50	7.15	32 2 6
Low	7.25	7.20	6.90 24 10 0	6.77½	6.40	29 10 0
Av.	7.34	7.41	7.12 25 12 3	7.07	6.72	31 1 2

* A. S. & R. price.
† Outside market. § Prime Western.

JOPLIN ZINC AND LEAD ORE

Review for May 1923.

The month of May showed a decline in the price of both zinc and lead ores. The month opened with zinc ore selling at $41.00 and closed at $37.50, a decline of $3.50 a ton during the month. Sales of zinc were good, however, and averaged 51,041 tons, or 12,760 tons per week, which compares with 11,532 tons for the same week last year. The average price

U. S. ZINC STATISTICS.

From the monthly reports of the American Zinc Institute, in tons of 2,000 lbs.

	Production 1923.	Production 1922.	Deliveries 1923.	Deliveries 1922.
Jan. ..	23,706	25,916	24,636	21,021
Feb. ..	42,443	22,513	48,153	24,067
Mar. ..	48,731	26,532	49,574	30,394
April .	46,866	25,506	47,911	34,040
May ..	.....	27,419	.....	38,738
June ..	.....	28,547	.....	39,380
July ..	.....	31,917	.....	32,875
Aug. ..	.....	31,423	.....	38,412
Sept. ..	.....	33,134	.....	35,957
Oct. ..	.....	39,940	.....	40,703
Nov. ..	.....	40,200	.....	38,746
Dec. ..	.....	42,841	.....	44,086
Total	.....	373,678	.....	422,034

	Stocks at Smelters* 1923.	Stocks at Smelters* 1922.	Retorts in Operation* 1923.	Retorts in Operation* 1922.
Jan. ..	16,574	65,678	84,131	44,457
Feb. ..	10,864	64,124	86,931	43,357
Mar. ..	10,021	60,262	89,054	45,373
April .	8,976	51,728	89,203	42,773
May ..	.....	40,409	.....	48,765
June .	.....	29,576	.....	52,677
July ..	.....	28,618	.....	54,909
Aug. ..	.....	21,629	.....	57,193
Sept. ..	.....	18,806	.....	65,936
Oct. ..	.....	18,043	.....	72,116
Nov. ..	.....	19,947	.....	75,664
Dec. ..	.....	18,252	.....	80,863

* At the end of month.

paid during the month was $38.64 which compares with $43.30 for last month and $29.51 for the same period last year.

The surplus stocks of zinc now held in the bins of the ore producers is estimated at 55,000 tons, an increase of 5,000 tons during the month and which compares with 56,000 tons for the same period last year.

A sale of 1,000 tons of calamine was reported during the month at an average price of $26.00 per ton.

Lead ore sales during the month aggregated 9,183 tons, or a weekly average of 2,296 tons. The month opened with a price of $92.50, dropping the next week to $90.00 at which price it remained for the remainder of the month. The average price for the month was $90.54. This compares with an average price of $109.96 for last month and $70.90 for the same period last year.

General mining conditions continue fair in spite of the declining price of ore and there is an optimistic feeling generally that the price will not go lower and will shortly advance. During the week Charles Schwab, who recently acquired 2,200 acres of Indian mining land, visited the district and expressed himself very well pleased with conditions generally. Another large interest who has entered the tri-state mining district is the General Exploration Company, owned by the St. Joe Lead Company, and they are now sinking shafts upon ore bodies which they have developed by an extensive drilling compaign during the Winter months.

PRIME WESTERN ZINC PRICES.

Average Prices, East St. Louis Basis.

	1923	1922	1921	1920	1919	1918
Jan. .	6.96	4.71	5.44	9.22	7.12	7.71
Feb. .	7.25	4.50	4.95	8.82	6.37	7.73
Mar. .	7.87	4.65	4.73	8.62	6.18	7.42
Apr. .	7.32	4.91	4.75	8.26	6.16	6.81
May ..	6.72	5.10	4.86	7.72	6.11	7.14
June .	....	5.35	4.44	7.58	6.57	7.85
July .	....	5.77	4.27	7.82	7.56	8.43
Aug. .	....	6.24	4.19	7.95	7.50	8.73
Sept. .	....	6.56	4.25	7.77	7.20	9.31
Oct. .	....	6.85	4.61	7.25	7.49	8.77
Nov. .	....	7.14	4.68	6.37	7.83	8.39
Dec. .	....	7.12	4.85	5.84	8.40	8.21
Av. ..	....	5.74	4.67	7.77	7.04	8.04

Annual Averages.

1917.....	8.93	1912.....	6.93
1916.....	13.57	1911.....	5.70
1915.....	14.16	1910.....	5.42
1914.....	5.11	1909.....	5.39
1913.....	5.61	1908.....	4.62

LEAD IN MAY

The peak of the lead advance having been passed in April, the month of May opened with the American Smelting & Refining Company's price at 7.75c New York, ½c per pound below the highest point touched.

It was the decline abroad, permitting foreign lead to compete duty paid in this market, which had caused this recession, but the reduction being still insufficient to prevent an influx of the foreign product, another lowering of the American Smelting & Refining Company's price followed on May 3rd to 7.50c New York.

The European market continued to weaken, however, touching £24 10s on May 8th, and yet another reduction was made on May 9th by the Smelting Company to 7.25c. This proved adequate in protecting the domestic market for the balance of the month, especially as the foreign price advanced later to £26 7s 6d, though it had receded to £25 15s by the end of May.

The foreign situation has thus been the chief ruling influence as to price. Apart from that it is quite probable that the market would have yet maintained its high level, for domestic consumption has shown little if any falling off from the large volume so long witnessed, and production has not achieved more than an approximate equalization. Some slight decrease in production has resulted from the ending of the Pittman Act silver purchases, though at present prices this is not likely to amount to much.

The caution shown by buyers of nearly all commodities has been noticeable in lead, but the lowering of the price and the recovery abroad was followed by a temporary spurt in demand from orders

WATERBURY ZINC AVERAGES.

	1923	1922	1921	1920	1919	1918
Jan. ..	8.00	5.25	6.05	9.75	9.00	9.60
Feb. ..	8.00	5.00	5.50	9.40	8.10	9.60
Mar. ..	8.70	5.10	5.25	9.15	8.00	9.40
Apr. ..	8.25	5.40	5.20	8.85	6.90	8.50
May ..	7.60	5.55	5.30	8.30	6.80	8.95
June ..	....	5.85	5.00	8.15	7.25	9.50
July ..	....	6.20	4.80	8.45	8.10	10.30
Aug. ..	....	6.50	4.70	8.55	8.15	10.45
Sept. .	....	7.10	4.75	8.45	7.85	11.20
Oct. ..	....	7.65	5.10	7.50	8.15	10.60
Nov. ..	....	7.90	5.15	7.00	8.55	10.20
Dec. ..	....	7.90	5.30	6.40	9.05	10.00
Av. ...	....	6.28	5.17½	8.33	8.00	9.86

that had been withheld. This carried the East St. Louis outside market up from 6.90c to about 7.12½c, but by the close of May the East St. Louis spot price had settled back to about 7.05c.

The surplus spot stock is not heavy and though caution is still manifested by buyers the market is on the whole in a healthy condition.

As to the further course of the foreign market, while European consumption is restricted by the unsettled conditions, foreign output is small, Spanish production having been only about 8,000 tons for March and Mexico is not maintaining the high scale reached early in the year.

LEAD PRICES, ST. LOUIS.

Average Prices, East St. Louis Basis.

	1923.	1922.	1921.	1920.	1919.
Jan. ...	7.64	4.40	4.78	8.32	5.36
Feb. ...	8.16	4.40	4.29	8.62	4.83
Mar. ..	8.33	4.43	4.03	8.93	5.01
April ..	8.03	4.97	4.30	8.71	4.87
May ...	7.12	5.30	4.82	8.52	4.80
June ...	....	5.58	4.34	8.36	5.06
July ...	....	5.45	4.28	8.58	5.42
Aug. ...	....	5.55	4.23	8.89	5.60
Sept. ..	....	5.90	4.41	8.23	5.81
Oct.	....	6.36	4.47	7.08	6.22
Nov. ...	....	6.88	4.38	6.16	6.68
Dec. ...	....	6.99	4.40	4.75	6.96
Year ...	....	5.52	4.39	7.93	5.55

Annual Averages

1918	7.25	1913	4.26
1917	8.92	1912	4.38
1916	6.80	1911	4.31
1915	4.57	1910	4.33
1914	3.74	1909	4.10

LEAD PRICE CHANGES.

The American Smelting & Refining Company's changes in the base price of lead since the beginning of 1922 are given below:

1922—		Oct. 6	6.50
Opening	4.70	Nov. 1	6.75
Mar. 30	4.80	" 2	7.00
April 3 ...2	4.90	" 24	7.10
" 7	5.00	Dec. 19	7.25
" 20	5.10	1923—	
" 24	5.25	Jan. 9	7.40
May 16	5.35	" 10	7.50
" 18	5.50	" 22	7.75
" 29	5.65	" 23	8.00
June 7	5.75	Feb. 23	8.10
Aug. 21	5.90	Mar. 1	8.15
Sept. 14	6.00	" 2	8.25
" 19	6.10	April 19	8.00
" 22	6.25	" 28	7.75
" 27	6.3[illegible]	May 3	7.50
		" 9	7.25

TIN IN MAY

The movements of the tin market in May were almost a duplication of the previous month, reactions being followed by advances of short duration, the net result being a decline for the month of 2½c per pound as compared with a net decline in the previous month of 3¼c per pound.

Opening at 45.12½c, the market advanced in the next two days to 45.62½c, declining to 43.75c by May 9th, improving the next day to 44.12½c, declining to 41.25c by the 16th, advancing to 43.00c on the 18th, declining to 41.75c on the 22nd, advancing to 42.50c two days afterwards, declining to 41.75c on the 28th and closing for the month at 42.62½c. The highest price during the month was 45.62½c, lowest 41.25c, average for the month 43.16c.

The London fluctuations closely approximated those of the New York market, and in almost every case when the advances took place they were influenced by New York traders. The improvements in price, however, failed to create any buying interest on the part of consumers, and when buying from traders stopped and on efforts to take profits, prices slumped off again.

This was exactly the history of the month of April in tin. The indifference of the American consumer has been discouraging to operators in both markets, and speculation in consequence has been very limited in London during the month, and until some new factors to affect prices develop, quiet markets can be expected. Whereas, during January, February and March the London market for the greater part supplied the incentive, in April and May the incentive has been from New York traders, London seeming to see nothing but the American position on which to base calculations.

The statistics at the beginning of the month were very favorable, showing large American deliveries of 6,775 tons in April, small Straits shipments, and in consequence the visible supply of the world decreased 2,506 tons, standing at 22,116 tons on May 1st as against 23,917 tons on the same date a year ago. It is to be remembered, however, that the invisible stocks in China and Bolivia a year ago no longer exist. The Straits shipments during April and May were rather a surprise, and seem to indicate that very little action has been taken

MONTHLY TIN STATISTICS

As published by the New York Metal Exchange in tons of 2,240 pounds:

	May 1923.	April 1923.	May 1922.
Supplies—			
Straits	5,535	4,490	6,737
Australian	60	120	45
Banka and Billiton	1,704	1,184	1,249
Chinese	918	1,069	806
Standard	877	590	645
	9,094	7,45	9,482
Deliveries—			
U. K. all kinds	1,763	1,410	1,941
U. S. A. all kinds	6,035	6,775	4,740
Continent, all kinds	1,225	1,774	1,575
	9,023	9,959	8,256
Increase in total visible supply	71	*2,506	1,826
Stocks—			
U. K. all kinds	4,257	4,352	7,353
U. S. A. all kinds	3,132	3,577	1,921
Continent, all kinds	2,348	2,444	2,937
	9,737	10,373	12,211
Afloat—			
U. K. all kinds	2,016	1,385	2,346
U. S. A. all kinds	8,173	8,914	8,895
Continent, all kinds	2,261	1,444	1,691
	12,450	11,743	12,932
Tot. visible supply	22,187	22,116	25,143

* Decrease.

STRAITS TIN PRICES.

Average prices of Straits tin for prompt delivery in New York.

	1923.	1922.	1921.	1920.	1919.
Jan.	39.17	32.11	36.11	62.89	72.50
Feb.	42.03	30.82	32.47	60.00	72.00
Mar.	48.65	29.17	28.85	61.99	71.75
April	45.87	30.65	30.41	62.20	72.26
May	43.16	30.97	32.52	55.07	71.94
June	.....	31.54	29.57	48.62	71.20
July	.....	31.82	27.69	49.37	70.39
Aug.	.....	32.43	26.40	47.69	63.78
Sept.	.....	32.40	26.73	44.62	55.81
Oct.	.....	34.64	27.74	40.64	55.62
Nov.	.....	36.72	29.02	37.02	54.17
Dec.	.....	37.68	32.49	34.15	55.06
Average	.....	32.58	30.00	50.36	65.54

Yearly Averages.

1919	65.54	1914	35.70
1918	86.80	1913	44.32
1917	61.65	1912	46.43
1916	43.48	1911	42.68
1915	38.66	1910	34.27

TIN DELIVERIES IN UNITED STATES

Monthly deliveries of tin in United States, exclusive of domestic refined tin, in tons of 2,240 pounds.

	†1923.	1922.	1921.	1920.	1919.
Jan.	6,625	4,275	1,555	3,910	1,850
Feb.	6,185	3,215	1,585	5,200	2,450
Mar.	6,634	6,030	1,683	5,130	2,070
April	6,775	4,995	1,590	3,305	36
May	6,035	4,740	1,225	3,550	20
June	.....	5,130	1,590	6,500	68
July	.....	4,590	1,525	5,530	132
Aug.	.....	4,150	3,320	3,745	4,345
Sept.	.....	5,050	2,605	4,860	4,825
Oct.	.....	5,603	2,280	3,415	2,875
Nov.	.....	4,812	3,250	3,395	6,665
Dec.	.....	4,870	3,710	2,580	6,965
Total	.....	57,460	25,918	51,120	32,301

VISIBLE SUPPLY OF TIN

World's visible supply of tin at end of each month in tons of 2,240 pounds.

	†1923.	1922.	1921.	1920.
Jan.	25,765	26,216	18,994	21,056
Feb	25,157	25,047	17,074	21,586
Mar.	24,622	22,353	16,073	18,305
April	22,116	22,017	15,670	19,342
May	22,187	22,910	18,352	20,976
June	.....	23,566	17,968	18,851
July	.....	21,502	20,316	18,546
Aug.	.....	24,176*	19,358	19,858
Sept.	.....	22,879*	21,189	18,996
Oct.	.....	22,902	23,349	19,964
Nov.	.....	25,286	22,806	19,823
Dec.	.....	24,930	25,220	19,410
Average	.....	23,649	19,697	19,726

* Includes current shipments of Banka and Chinese to U. S.

Annual Averages.

1919	12,890	1914	14,907
1918	13,894	1913	12,377
1917	18,803	1912	13,207
1916	18,585	1911	16,404
1915	15,208	1910	18,815

TIN SHIPMENTS FROM STRAITS

(Tons of 2,240 lbs.)

	†1923.	1922.	1921.	1920.	1919.
Jan.	6,255	5,515	1,055	3,910	3,340
Feb.	4,655	3,640	240	4,810	2,860
Mar.	6,020	4,985	915	2,795	2,254
April	4,490	5,350	1,800	3,872	1,127
May	5,535	6,420	3,667	4,930	1,704
June	.....	6,505	1,425	4,261	1,629
July	.....	4,035	3,975	3,865	7,302
Aug.	.....	5,855	3,165	3,798	8,829
Sept.	.....	4,050	5,300	4,529	5,465
Oct.	.....	5,650	4,525	3,340	4,431
Nov.	.....	6,145	4,065	2,630	4,135
Dec.	.....	4,635	5,920	2,225	6,677
Total	.....	62,785	36,052	44,965	49,763

Annual Totals

1918	*55,000	1914	63,093
1917	62,366	1913	62,550
1916	61,587	1912	59,318
1915	66,517	1911	55,470

† Note — London Metal Exchange statistics. * Estimated.

towards the liquidation of the tin held by the Malay States and the Dutch Government. Under agreement reached April 12th, the parties to the agreement are privileged, at their individual discretion, either to hold or sell up to 5% of their stocks per month. These stocks it will be remembered, were 17,500 tons and are not included in the figures of the visible supply. It is supposed that the decline since the agreement, has made the holders of these surplus stocks in the East Indies indisposed to take advantage of the permission to liquidate, and it is very plain that they have overstayed their market.

The statistics on June 1st were rather disappointing, showing that in spite of again large American deliveries of 6,035 tons in May, the world's visible supply increased 71 tons whereas a decrease of about 1,000 tons had been expected.

The future of the tin market would seem to depend on what the American consuming demand, not operations, is to be during the next two or three months. During the first five months of this year, American deliveries have exceeded all records and have amounted to 32,254 tons, an average of 6,451 tons per month, which compares with the average American deliveries for the first five months of previous years as follows:

	Tons.		Tons.
1922	4,651	1917	5,208
1921	1,528	1916	5,045
1920	4,219	1915	3,535
1919	1,285	1914	3,890
1918	4,458	1913	3,980

TIN PRICES IN MAY

Day	New York Straits	New York 99%.	London Stand. £ s. d.	London Straits. £ s. d.	Singapore Straits. £ s. d.
1	45.12½	nom.	213 0 0	218 0 0	216 5 0
2	45.60	45.00	215 0 0	220 0 0	218 10 0
3	45.62½	45.00	215 10 0	220 10 0	220 5 0
4	45.12½	44.37½	213 5 0	218 5 0	220 15 0
7	44.50	43.60	210 5 0	215 5 0	216 0 0
8	43.75	42.75	206 10 0	211 10 0	213 10 0
9	43.75	42.75	206 10 0	211 10 0	211 5 0
10	44.12½	43.25	207 15 0	212 15 0	210 15 0
11	43.37½	42.50	205 0 0	210 0 0	212 15 0
14	42.25	41.37½	199 0 0	204 0 0	206 0 0
15	41.87½	41.12½	197 5 0	202 5 0	202 0 0
16	41.25	40.62½	192 17 6	197 17 6	200 0 0
17	42.25	41.87½	198 10 0	202 10 0	200 0 0
18	43.00	42.37½	202 10 0	206 10 0	205 5 0
21	42.62½	42.12½	Holiday	... ...	... ...
22	41.75	41.25	196 10 0	200 10 0	205 5 0
23	42.12½	41.50	196 10 0	200 10 0	197 15 0
24	42.50	41.87½	199 0 0	203 0 0	200 5 0
25	42.37½	41.75	199 0 0	203 0 0	202 10 0
28	41.75	41.25	196 15 0	200 15 0	198 5 0
29	42.25	41.62½	197 15 0	200 15 0	199 10 0
30	Holiday		199 15 0	202 15 0	202 15 0
31	42.62½	42.00	200 0 0	203 0 0	202 15 0
High .	45.62½	45.00	215 10 0	220 10 0	220 15 0
Low .	41.25	40.62½	192 17 6	197 17 6	197 15 0
Aver. .	43.16	42.38	203 1 11	207 10 1	207 7 6

The large American deliveries this year represent the heavy purchases made in the first three months of the year, at which time consumers were booking enormous orders for commodities requiring pig tin, which orders for goods are still in process of manufacturing. It is difficult to believe America can continue to take the metal in such enormous volume, and the visible supply for the next few months should increase unless some great improvement in the European consumption takes place, which, of course, hangs on a settlement of the reparations, and a beginning of Europe's ability to function financially and arrange for supplying economic needs.

Since about two months ago, new orders for commodities requiring tin have shown a great slump, and this is true of other commodities. Until consumers receive new orders, their attitude has been to buy virtually nothing, and this attitude is responsible for the decline from over 50.00c in March to present prices around 42.00c.

Statistically it is difficult to expect permanent higher prices for tin which on May 31st were 42.62½c as compared with 31.75c on the same date a year ago, since the visible supply is only less than 2,000 tons smaller, and the invisible supply of some 17,000 tons which was a year ago tied up by agreement not to sell at any price, can now by agreement of holders be sold at the rate of 5% per month of their holdings.

PLATINUM IN MAY

A relatively quiet market for platinum existed throughout May. Dullness, however, is usually experienced at this time of the year. Prices did not change essentially but a little firmer undertone was developed as a result of light importations. The official price of refined platinum remained unchanged at $116 an ounce but, as in the preceding month, actual business was done at $2.00 an ounce less.

The official price today remains $116 an ounce for refined, $124 for No. 12 medium and $131 for hard but these prices, as with the ordinary refined, were shaded about $2.00 an ounce, sales of No. 12 medium being made at $122 and hard at $129 an ounce. Manufacturing jewelers have not been conspicuously in the market for some time.

Most of the importations of crude platinum are coming from Colombia. Light supplies are also being received from Europe but not directly, that is, not directly from Russia. The smaller supply of crude has caused a further advance in the market from $108 to $110 an ounce and some holders are asking $112 an ounce.

Palladium remained steady but quiet throughout May at $79.00 to $81.00 an ounce but iridium was stronger, advancing from $250 to $275 an ounce and even higher prices were asked for small lots.

ALUMINUM IN MAY

Buying of aluminum throughout May in the local market was confined within very narrow limits. Supplies available for the open market remained light. It is seldom that any aluminum arriving against contracts is offered for resale by consumers in the interior. The few lots that are sold from week to week command full prices. The tendency was toward a hardening of the market last month but there was not enough business to establish prices above those made early in the month, that is 27.00c to 27.50c for 99% virgin and 26.00c to 26.50c for 98% to 99% ingots.

It is understood that some special small lots of Italian aluminum are occasionally disposed of at a shade under the prices asked for other foreign product. The output in Europe, however, is understood to be improving somewhat as a result of a more ample supply of fuel. Dealers are expecting some offerings of Swiss aluminum but as yet there has been no business upon which reliable prices may be established.

No change is reported in the attitude of the Aluminum Company of America which is still in arrears in shipments against contracts and has very little metal for sale in the current market. Most of the agents representing large foreign producers have little or no surplus to offer and are also still behind in deliveries against contracts to American buyers although progress is being made in reducing unfilled obligations.

ALUMINUM, ANTIMONY, SILVER AND STERLING EXCHANGE QUOTATIONS IN MAY

Day	Aluminum	Antimony	Silver — N. Y.	Silver — London.	Sterling Exch.*
1	26.00	7.75	.67¾	32 13/16	$4.63 15/16
2	26.25	7.75	.67¾	32¾	4.63¾
3	26.25	7.75	.67⅞	32 13/16	4.63¼
4	26.25	7.68¾	.67¾	32 13/16	4.62½
5	.....	....	.67¾	32 15/16	....
7	26.25	7.62½	.67⅞	32¾	4.61¾
8	26.25	7.62½	.67⅜	32⅞	4.61½
9	26.25	7.56¼	.66⅞	32 9/16	4.60⅜
10	26.25	7.56¼	.66⅞	32⅝	4.60¾
11	26.25	7.56¼	.66⅜	32 7/16	4.62⅛
12	.....	....	.67½	32⅝	....
14	26.25	7.50	.67½	32 15/16	4.62⅝
15	26.25	7.42½	.66⅞	32 9/16	4.63
16	26.25	7.42½	.66¼	32 5/16	4.62⅝
17	26.25	7.37½	.66⅞	32 9/16	4.62¼
18	26.25	7.30	.66½	32⅜	4.62⅜
19	.....	....	.66¾	32⅜	....
21	26.25	7.30	.66¾	32⅜	4.63⅜
22	26.25	7.30	.66⅞	32 7/16	4.63½
23	26.25	7.25	.67⅜	32¾	4.63
24	26.25	7.25	.66¾	32¼	4.62¾
25	26.25	7.20	.67	32 5/16	4.62⅝
26	.....	....	.67⅛	32 1/16	....
28	26.25	7.15	.67⅛	32⅝	4.62⅝
29	26.25	7.12½	.66⅞	32½	4.62⅛
30	Holiday		...	32 9/16	Holiday
31	26.25	7.05	.66	32	4.62½
High ..	26.50	7.75	.67⅞	32 13/16	4.63⅛
Low ..	26.00	7.00	.66	32	4.60⅜
Aver. .	26.24	7.43	67.0/	32.57	....

ALUMINUM PRICES.

Open market quotations on virgin aluminum 98-99% pure, in New York.

	1923.	1922.	1921.	1920.	1919.
Jan. ...	22.75	17.74	22.86	32.00	33.10
Feb. ...	23.25	17.33	24.50	31.83	32.26
Mar. ...	24.95	17.52	23.44	31.50	29.81
Apr. ...	26.00	18.06	23.25	31.61	30.67
May ...	26.24	17.92	23.06	31.95	32.21
June ...	.....	17.87	22.75	32.00	32.83
July ...	.....	17.87	22.62	32.00	32.57
Aug. ...	.....	17.87	20.22	32.21	32.23
Sept. ..	.....	18.26	19.02	31.44	32.50
Oct. ...	.....	20.51	17.85	29.12	32.50
Nov. ...	.....	21.66	17.50	27.80	32.50
Dec. ...	.....	22.52	17.50	23.83	32.48
Av.	.....	18.68	21.21	30.61	32.14

NICKEL IN MAY

Manufacturers of nickel both here and in Canada made heavy shipments against contracts in May. The volume of new business, while smaller than early in the year when manufacturers were covering their yearly requirements, was quite satisfactory. Supplementary buying by consumers increased in both number and amount throughout the month. Sales were made at 29.00c to 32.00c a pound as heretofore and the tone of the market was firm at the close at these prices.

The pressure for deliveries against contracts has increased and with satisfactory supplementary buying the International Nickel Company, it is understood, is about to increase production 30%. The British American Nickel Corporation is now operating its plant at

full capacity. Surplus stocks in the hands of manufacturers have been reduced to a very low point and surplus can now be accumulated only by increasing production.

QUICKSILVER IN MAY

Large consumers of quicksilver still have ample stocks to meet their consumptive requirements for the next two or three months and therefore are buying very little. Mercurial manufacturers especially are well supplied and are buying little. During the last week of May one lot of about 1,900 flasks arrived from Europe. A portion of this was delivered against contracts but some of it came on to the market and purchases were made by dealers at $67.00 a flask while small lots are being resold at $67.50 and occasionally a small lot brought as high as $68.00 for prompt shipment. Furriers and vermillion paint manufacturers were buying from hand to mouth only, and securing supplies at $67.00 to $67.50 as dealers, while asking $68.00, were shading this price 50c to $1.00 a flask.

It is understood that some metal afloat from Italy could be obtained at $66.00 a flask, as the undertone of the market was easier at the end of May as a result of light current demand and larger supplies available abroad. In the first three months of this year Spanish mining developed about 20,000 flasks and with supplies carried over from last year, about 32,000 flasks were available.

The London market remained quite steady during the first half of May at £10 and later rallied to £10 10s. Toward the close of the month, the market was slightly easier at £10.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., required by the act of Congress of August 24, 1912, of STEEL AND METAL DIGEST, published monthly at New York, N. Y., for April 1, 1925.

State of New York, County of New York: Before me, a Notary Public in and for the State and county aforesaid, personally appeared C. S. Trench, who, having been duly sworn according to law, deposes and says that he is the Editor of the Steel and Metal Digest, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, printed on the reverse of this form to wit:

1. That the names and addresses of the publisher, editor, managing editor, business managers are:

Name of— Post Office Address

Publisher,
The American Metal Market Co.,
81 Fulton St., N. Y. C.
Editor, Charles S. Trench,
81 Fulton St., N. Y. C.
Managing Editor, Charles S. J. Trench,
81 Fulton St., N. Y. C.
Business Mgr., Charles S. J. Trench,
81 Fulton St., N. Y. C.

2. That the owners are:
The American Metal Market Co.,
81 Fulton St., N. Y. C.
Charles S. Trench, 81 Fulton St. N. Y. C.
Charles S. J. Trench,
81 Fulton St., N. Y. C.

3. That the known bondholders, mortgagees and other security holders owning or holding 1 per cent. or more of total amount of bonds, mortgages, or other securities are: Brooklyn Trust Co. Brooklyn, N. Y.

4. That the two paragraphs next above giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner, and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

(Signed) Charles S. Trench,
Editor.

Sworn to and subscribed before me this 31st day of March, 1923.

Walter S. Byrne,
(Seal) Notary Public, Kings County.
Ctf. filed N. Y. Co.

(My commission expires March 31, 1925)

ANTIMONY IN MAY

Antimony continued to decline slowly but steadily during May, the spot market for Chinese 99% at the beginning of the month being 7.75c duty paid, and at the close 7.00c f.o.b. New York.

Demand was extremely light, consumers being generally well supplied for immediate requirements and lacking confidence in futures.

Speculative lots bought on the advancing market for the early months of the year and becoming shortly due, were constantly pressed for sale with but little response from buyers. The Chinese market followed slowly in the decline, and at the end of May there were first-hand offerings from that market for early shipment at 5.00c c.i.f. New York, the equivalent of the spot price of 7.00c duty paid.

The short-lived advance began with the first of the year, from 6.25c (duty paid) and reached its climax in March at 8.87½c. At the end of May with the market at 7.00c, the tendency was still downward, and the price seemed not unlikely to reach the level from where it started.

The saving condition may prove to be the lightly booked condition of consumers for future shipment, due to their distrust of the market. Any improvement, however, must probably await the thorough liquidation of the re-sale parcels.

ANTIMONY PRICES.

Prices for Chinese and Japanese antimony (ordinary grades) in New York.

	1923	1922	1921	1920	1919	1918
Jan.	6.81	4.45	5.22	10.53	7.59	14.23
Feb.	7.20	4.38	5.23	11.55	7.24	13.67
Mar.	8.75	4.25	5.30	10.97	6.83	13.12
April	8.38	4.88	5.15	10.45	6.82	12.52
May	7.43	5.42	5.25	9.44	7.56	12.41
June	....	5.13	5.06	7.93	8.37	12.99
July	....	5.08	4.68	7.43	8.81	13.18
Aug.	....	5.29	4.55	7.04	8.92	13.81
Sept.	....	6.43	4.53	7.10	8.53	13.93
Oct.	....	6.80	4.94	6.62	8.60	13.44
Nov.	....	6.54	4.66	6.05	9.06	9.10
Dec.	....	6.35	4.51	5.46	9.56	8.19
Av.	....	5.42	4.92	8.38	8.16	12.55

Annual Averages

1917	20.73	1913	7.43
1916	25.33	1912	7.68
1915	29.52	1911	7.48
1914	8.53	1910	7.27

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Steel and Metal DIGEST

VOL. 13 JULY, 1923 NO. 7

THE BUSINESS SITUATION

Business reaction in June was more pronounced than in the two preceding months. July begins with misgivings and uncertainty, but while unfavorable elements are more numerous there are some strong factors in the general situation. The immediate future depends more upon sentiment than upon fundamental conditions. There is reason to expect some improvement in the industrial situation in the Fall if not earlier, but return to such activity as marked the first quarter of the year is not to be expected. The danger of inflation which the country faced in March has passed but seeds of depression were sown at that time and as action and reaction are equal and opposite, we may anticipate a general tendency toward trade contraction in the course of the next year. In the second half of the current year no such outcome except in a minor degree is to be anticipated.

Among the encouraging factors may be cited the relatively favorable credit situation. Merchants and manufacturers are not over-extended, nor is there any pressure upon business men which would force a substantial contraction in business volume leading to a sacrifice of assets, but recent liquidation in securities has been severe. There is no general over-production of goods and the tendency is to adjust output to offset decreasing consumptive requirements. There is no great stock of merchandise in hands of manufacturers and wholesalers to be worked off through retailers to consumers, but stocks are fully ample to meet requirements.

Drop in Securities.

Recent developments in the stock market have increased the conservatism that already had been fostered in business circles. Usually the stock market discounts business conditions by six months and if we are to have the usual course trade volume will be contracted toward the close of the year beyond that due to the Winter season. It is pointed out that the severity of the decline in prices of securities has been partially due to brokerage house failures, but even if there had been no failures, the probability is that prices would have declined with more or less severity. Brokerage mortality only intensified the downward movement. Some of the decline in securities also probably was due to technical conditions of the market itself but fundamental business conditions have not changed for the better.

Construction.

The building situation, with relatively high prices for materials and steadily advancing wages for labor, is causing concern. There was a further contraction in construction last month and more projects were delayed or abandoned. Building work, however, will go forward although it may be haltingly during the remainder of the season. Much work which was nearing completion could not be abandoned, even though abnormally high wages were paid to artisans, without most serious loss to contractors and to the community at large.

It is true that car and locomotive builders have orders on their books which will keep them busy during the remain-

der of the year, but the significant fact is that few new orders were placed by the carriers for either cars or motive power in the last two months. Road construction has been curtailed, resulting in smaller orders for steel used in concrete construction. Other consumers of steel products also have shown less interest in buying. Orders taken by the U. S. Steel Corporation subsidiaries in June decreased about 30% as compared with the preceding month. Unfilled orders on the books decreased between 550,000 and 600,000 tons. This was the severest decrease in buying during a single month that has occurred since December 1920.

Steel Output Falls.

Production of steel has steadily decreased as a result of lighter buying since early May but the industry as a whole utilized about 88½% of capacity and the Steel Corporation 92½% of capacity in June. Since the first of July there has been a drop of 20% to 25% in steel plant operations. While this has been largely because of the usual mid-year suspensions for repairs after an unusually active and trying period and therefore temporary, it is quite evident that the steel companies have taken advantage of the opportunity to adjust production more nearly to smaller current consumptive requirements. It is probable, however, that there will be renewed activity in the Fall, in fact unfilled orders on the books of most of the steel companies will call for resumption of higher operations in the next few weeks.

Copper Outlook.

It seems probable also that a temporary quickening of industry in the Autumn may help copper producers through renewed purchases by consumers but the heavy consumption of copper by home industries, which was the sustaining force during the first six months of this year, cannot be relied upon with any appreciable degree of confidence to bring about substantial recovery in the second half of the year. It is significant that in the face of further decided improvement in the statistical position of the industry, prices have declined ½c per pound in the last month, making a total decline of 3.00c per pound since the advance culminated in March, putting profits of not a few producers in jeopardy. It is well to remember that the price has now declined to where it was last December when the recent business movement began.

Copper Statistics.

Statistically the copper producers' position is the best since the war. Stocks of refined metal are equal to scarcely more than six weeks' requirements of domestic and foreign consumers but the world's production is heavy and, with even a moderate reduction in home melting, current supply will be fully ample to meet all demands, domestic and foreign. Eventually of course, copper will come into its own. The world's potential needs are enormous and as hydro-electric power is developed and electrification of railroads is accomplished, copper mines, smelters and refineries will flourish.

Europe has taken American copper at the rate of 50,000,000 to 60,000,000 lbs. a month since January or about one-third of the American output in the same time. This is fairly satisfactory with German industry still handicapped. As Europe makes further recovery American copper producers will benefit.

Conservatism Helps.

It may be too early to obtain a clear view of business conditions in 1924, but there is reason to believe that the so-called depression claimed to be due in the business cycle next year, will be modified in its effects just as the semi-boom in March last was prevented from totally wrecking prosperity.

The Enterpriser.

It was the wholesome conservatism adopted by responsible business men that checked the trend toward inflation last Spring, and the same force, doubtless, will be useful in restraining a tendency toward depression next year. It is the business man, or the enterpriser, as he is now termed by economic science, who is the central factor in production. Contrary to the obsolete erroneous notion that the business man profits only by exploiting the "producing classes," he is himself the main element in the productive process. He takes the initiative and assumes the risk and responsibility of any enterprise which he may undertake. He protects those with whom he may be associated by assuring to the

capitalist, interest; to the laborer, wages; and to the landlord, rent. Only after these other factors of production have been satisfied does he obtain his profit—patiently awaited—to which he is fully entitled, be it large or small.

The business man, or enterpriser, may be the presiding genius a great corporation, the director of a smaller concern or the head of an unorganized business, but whatever his individual position, his function is the same and he shares the common responsibility to the community to be a constructive force in industry for the general weal. To this end it is a matter of vital concern to every business man to detect tendencies toward either inflation or depression and to take such action as may help to modify the extreme swings in business which are sources of embarrassment and of business mortality.

Middle-Man

It is important to recognize the responsible position of the "middle-man" in the economic scheme. His function is most vital in the marketing process, which is a phase of production and the idea that his services can be dispensed with entirely in modern business practice is unsound. His special knowledge and ability make his services valuable to producer and to consumer alike.

Where manufacturers or producers elect to sell direct to the consumer they merely assume the duties of the "middle-man," and incur additional expenses in the organization of a selling force. This increased "overhead" offsets any gain that the manufacturer may secure through non-payment of commission to the "middle-man" while the consumer gains nothing. The notion that the consumer is able to buy directly from the producer who has not usurped the middle-man's function, at a lower price than would have to be paid through a broker acting in an open market, is a fallacy. The elimination of the independent "middleman" by manufacturers or other producers assuming his function does not benefit the consumer in the long run. The consumer must pay the cost of marketing whatever method is adopted.

Labor Demands

At the moment the gravest menace to business prosperity is the inordinate demands for higher labor wages most conspicuously exhibited in the building trades. Under pressure many of labor's demands are being granted thus increasing the costs of production and disturbing business through interference with the free play of economic forces. The arbitrary actions of powerful labor organizations are especially baneful.

Advances in prices of commodities and of wages which come about naturally as a result of the operation of economic laws always set in motion corrective measures spontaneously but to the extent that these changes are the result of powerful organizations where strong resistance is developed and the play of opposing forces brings wreck and ruin. The outcome of the present critical situation is largely dependent upon the action of union labor.

Industry's Burdens

Industry, in addition to the heavy labor load fastened upon it, is burdened to the extent of $8,000,000,000 a year by taxes imposed by State and National Governments. This is the estimate of the First Federal Foreign Banking Association which points out that heavy taxation and the increase of property values are causes for high commodity prices, probably as much so as the accumulation of $4,000,000,000 gold in this country. This huge gold surplus is not regarded as a serious menace but on the contrary it affords the United States an unusual opportunity to establish the dollar as an international exchange standard in competition with the pound sterling.

Gold Surplus

Dollar credits made world-wide, could employ much of our gold assets to advantage as a lower ratio of gold to our total supply of money would be feasible. Our present gold ratio is 9%. Great Britain does a large international business upon a ratio of 5%. The Association shows that this country's total bank deposits are in excess of $40,650,000,000. Money held outside the banks is $3,570,000,000 while the gold supply is about $3,982,000,000. About 95% of this nation's business is done by checks and we have 40,000 banks upon which these drafts are drawn. Under such circumstances the nation's gold reserve need give small concern, but sound economics

would seem to demand that safe employment be given to the gold surplus.

Foreign Trade

Consideration of our possible international activities calls attention to the significant changes already made in the character of our foreign trade in the last fiscal year. The Trade Record of the National City Bank estimates that American imports of raw materials in the fiscal year just ended amounted to $1,000,000,000 or a 10% gain over the preceding year. This is a maximum record. For some months, as is well known, imports have been in excess of exports. Heretofore the excess movement of raw material has been from the United States to Europe. Recently raw materials have been 39% of the total foreign merchandise entering our ports. Including semi-finished material it is shown that about 58%, of our total importations have been of goods to feed our factories. Since 1900 our crude material imports have increased 260% in terms of dollars.

Significant Changes

On the other hand the proportion of our exports of raw materials has been decreasing and the proportion of manufacturers has been increasing although our total exports are smaller. As the Chase Bank Bulletin observes, "We have taken over a considerable part of Europe's previous work in supplying the world with manufactured goods.

Europe has made considerable agricultural progress since the war, but recovery in manufacturing has been relatively slow. One result of European conditions has been only moderate purchasing of raw material in this country for export, especially of farm products. In consequence, as pointed out many times in recent months prices of American raw materials have remained relatively low and the purchasing power of producers, especially of the wheat farmer, has suffered.

Succor for Farmers

Congress, however, has come to the rescue of the American wheat grower and other farmers and the Federal Reserve Board has called attention of bankers to the importance of the Federal Reserve System functioning effectively in providing adequate financing for the orderly marketing of agricultural products. The movement of wheat to the world's markets is being given special consideration and growers are urged to take advantage of the added credit facilities that are now available. The agricultural situation in many sections has improved and steps are being taken to avoid periodical congestion at terminal points which is to the disadvantage of the producer and favors combined buying by foreign countries.

Conclusion

Considering all the factors as marshalled in this review it is evident why business reaction was pronounced in June and why the near future holds out encouragement for at least a temporary recovery in the second half of the year.

CIRCUMSTANCES OF REACTION IN SENTIMENT

We have now had about two months of this reaction in business sentiment, and a fresh survey may be made. At the outset it was said that the wave of conservative sentiment that spread over business circles had its origin in Wall street. There were marked declines in shares, with but feeble rallies, and the diagnosis was that business men were taking their cue from Wall street and assuming that it was time to become cautious. Wall street was probably discounting something, and whether or not the thing or things being discounted were known the best guess was that if Wall street had occasion to discount them it would be wise for others to discount them also.

The passing of time has served strongly to accentuate this view, that it is distinctly a Wall street affair. There are two points about this (1) Conditions in Wall street have grown much worse. (2) Conditions in industry have failed to develop along the same line.

As to this second point, one must make a clear and strong distinction between transactions and actual work. It is the commodity markets that have grown inactive. Production, distribution and consumption continue. We still have substantially the same industrial activity, in actual work, as formerly. In steel, it is a question whether in the past week there has been 1% less

consumption than in the biggest week, and it is beyond doubt that the consumption has been greater than the average of the 25 weeks that preceded it in the half year.

Two months is a good while. One might expect the course of industrial activity to be verifying the Wall street attitude by this time. How long ahead does Wall street discount things? Sometimes six months, sometimes six weeks, sometimes not even five minutes, and sometimes it discounts things that do not occur. Nearly always, it is true, Wall street does discount. The great difficulty about Wall street showings, for the business man, is that one never knows just how far ahead is the thing being discounted.

As to the first point, conditions in Wall street growing worse, it is astonishing how bad they have grown. There have been failures that were, if the expression be permitted, absolutely unjustifiable. Rumors started, no one seems to know just where, and they produced runs that firms solvent by a wide margin could not stand.

A point that has not been emphasized in most reviews, yet is of the greatest importance to those who wish to give real study to this general phenomenon, is the widespread character of the share liquidation. The selling orders have not come from certain quarters, but from everywhere. One day last week one of the largest "small lot" houses did the greatest business in its whole history. These houses deal not with the public but with other brokers, who turn over to them their orders in less than 100-share lots. The small-lot orders came from all over the country. The general public has been moved to act.

Now, it may be entirely true that this whole thing is "a bear raid" in the stock market. Grant, for argument, that is precisely what it is. The point is that the raid has been successful. The public has been impressed and has acted. The soil, then, must have been ready. The raiders sowed the seed, but something else must have prepared the soil, and business men should take that into account.

It must be remembered that the stock market had not been the kind that sometime develops, when everybody was "taking a flyer," making an overturning absolutely unavoidable. The market had been rather a conservative affair. The mass of the public was not "in" to the great extent that has often been observed before such breaks.

The public, then, was in mood to become conservative, and if in share matters, also in other matters. At the same time, industrial activity continues and still displays much momentum. Observance of this industrial activity may, then, produce a favorable reaction in sentiment.

APPRENTICE TRAINING A LIVE ISSUE

"One of the perrenial problems to engage the attention of the American Foundrymen's Association ever since its organization has to do with devising a workable system of apprentice training to provide an adequate supply of skilled molders, not only to taken the place of those who drop out through natural causes, but also to keep pace with the growth and expansion of the foundry industry," says **The Foundry.** "This subject received a considerable measure of attention even before the foundrymen became organized in a technical association. It also furnished a theme for various correspondents in technical papers before that time. Attempts have been made at different times to establish a training station where young men could be taught the trade; but invariably the project has fallen through. Of course, proponents of the theory, are prepared to advance plausible reasons to explain why the experiment failed, but plain, practical foundrymen know that, like any other business, the only way to learn to do a thing properly is actually to do it with one's own hands. The only way to learn to make castings under commercial conditions is to work in a shop with journeymen molders who are paid a certain wage for performing a certain amount of work that has a definite cash, market value.

"An apprentice working in company with other apprentices, exclusively, under the direction of an instructor never will get the same conceptions of the importance of his job as an apprentice working among a crowd of molders, each one of whom either has to deliver the goods or quit. It is not in the nature of the average boy to take his work seriously. Usually he is just out of

school when he enters one of the apprentice classes. He still has the typical schoolboy attitude to squirm through with a minimum amount of trouble and study. He looks upon the work merely as the unpleasant part of the day's activities. A superficial knowledge of the trade may be gained in this manner, but the skill of hand and eye, the comprehensive and balanced judgment which characterize the competent molder, in fact the elements without which a molder is not a molder, cannot be acquired or developed on such a flimsy foundation.

"At the recent convention of the American Foundrymen's association held in Cleveland, a symposium of half a dozen papers was presented on the subject of apprentice training and a considerable amount of discussion developed at one of the technical sessions devoted to that phase of the foundry industry. Expressed opinion decided practically unanimously that the question yearly is becoming more acute, but the various solutions proposed differed as widely as the geographical location of the authors of the various papers.

"Stripped of all equivocation, ornamental verbiage and all the other usual embellishments by which people avoid laying their finger directly on the sore spot, the situation has reached a point where instead of charging a boy a premium to teach him a trade, it now is necessary to pay a boy a wage to induce him to learn a trade and the only stumbling block in the way of putting the idea in force is to convince employers to that effect."

CANADA'S EXPORT OF AMERICAN-CANADIAN CARS

"Canada's growing importance as an exporter of manufacturers has been prominently before the public during recent months," says **Iron and Steel of Canada.** "Various natural resources and certain human resources have contributed to this result, while purely artificial conditions such as international tariffs, have added their quota of influence. A substantial part of the total exports now consists of iron and steel products, notably automobiles. A very large part of the iron and steel used in the construction of these automobiles is brought in from the United States, the Canadian plants being used principally for finishing and assembling the parts. A larger part of the preliminary operations could and should, be done in Canada.

"As with the manufacture of most of Canada's basal iron and steel products American iron ore, coal and practice are in use, so with the manufacture of Canadian automobiles the materials, methods and designs have been adopted complete from the United States. Little serious attempt has been made to adapt Canadian resources to the building of Canadian cars. Our factories have been, in the main, established as branches by American concerns and their owners are primarily interested in drawing dividends southward across the border. We in Canada are reaping a share of the benefit of these operations by means of employment for our workmen; but our comparative inaction and lack of initiative in the matter excludes us from the principal benefit, hinders the development of a truly indigenous industry and leaves our workmen virtually dependent for a livelihood upon a handful of foreigners whose orders regulate the operation of the factories.

"While this condition of affairs is to a large extent inevitable, it can be modified to a considerable extent on the initiative of Canadians interested in the economic independence of our country. In certain lines it is feasible to make in Canada, from Canadian materials, what is required for car construction to replace what is now being imported. High grade steel, which is of great and growing importance, is a notable example of this. It is quite possible that within a very few years the supply of alloy steel for Canadian cars will all be made in this country. True, the iron ore from which this steel is primarily derived is imported; but even that may be replaced within a reasonable period by native ores. Nickel, one of the chief alloying metals, is now supplied to the world in the refined state principally from Canada. Chromium and vanadium have still to be imported and Canadian manganese ore is still unavailable to our furnace. High-grade ferrosilicon is now made and used to a limited extent in Canada. Exploration and research might make us independent of imports in all these lines. With the minor metals we are, in general, well provided at home and there is little excuse for going abroad for our supply."

THE OBSERVER'S CORNER

It is only natural that a close parallel can be drawn between the adapting of one's nature as made by heredity, to one's environment as made by society, and the adapting of one's established mode of life to the changes that occur almost daily in the circumstances that affect one's business and private affairs.

In the first case, one of the most interesting things psychologists tell us is that there is a struggle constantly going on in the mind, chiefly in the unconscious part of the mind, caused by the difference between one's inherited traits, some of them from very remote ancestry, and the manners and social usages to which one must conform if he is to be regarded as normal. On this single theme much has been written, even a book the Observer recalls, devoted to this entirely, and entitled "Man's Unconscious Conflict" (Wilfred Lay).

In the second case, a man grows up and is habituated to certain ways of conducting his affairs. However progressive he may think himself he is disposed to do things today the way he did them yesterday, yet conditions are constantly changing and he must adapt himself to new things, which are almost universally called improvements. Perhaps they are not all improvements. Perhaps it is largely a matter of form, or of vanity, that makes us prone to consider all new things improvements, but we need not argue the why of it, since the fact is sufficient, that we are expected to conform and in most cases if we do not we get left in the race.

The two conflicts, the one between man's hereditary traits and his environment, and the other between his already formed habits of life and the changes in affairs that occur from day to day and year to year, are due largely to a single cause, that cause being that a great portion of our actions or disposition to act lies in the unconscious part of the mind. More and more often it is being said that the average man does not think. It is a favorite pastime to guess how many of the hundred million people in this country really do think. Some guess a few million, others a few hundred thousand. Perhaps it would not be difficult to find a man whose private notion is that there may be others than himself who think but he has not run across them.

In very considerable part thinking as commonly understood consists in bringing a subject into the center, so to speak, of the foreconscious and employing one's best judgment on it, instead of permitting action to be dictated largely by the unconscious, in which are our habits. A man should not be criticized so severely for not thinking, since the actual fact is that most of the things we do must be done unconsciously. One would get nowhere if he had to think everything out. Not being up in psychology, only having dabbled a little in it, the Observer cannot properly defend or elucidate the unconscious, but is entitled to mention an illustration of what it can do, from his own observation. No doubt many have noticed this same thing, but the Observer discovered it for himself and has never heard it mentioned. When walking along, put your attention on some little object, say ten yards in front of you, and conceive of it either as something that must be stepped on or not stepped on. Put other things in your consciousness as you approach it, but you will find your stride unconsciously altered so that you will either step on the thing or not step on it, as predetermined. Consciously, you could not do that, unless awkwardly. Unconsciously you do it perfectly. The point is that the unconscious really does a great deal for us, and it is rather harsh to criticize a man for "not thinking," when the best thinker does an innumerable number of things without thinking. If he did not, he would never have any time for his really useful thinking.

The conflict caused by the difference between man's heredity and his environment being recognized, let us likewise recognize the conflict between the ways in which we have grown accustomed to doing things and looking upon things and the new ways the changes in the affairs of the world require. These new things are going to be forced upon us and we can reduce the conflict by looking squarely at them so that we can accept them.

To illustrate, we can take a few instances quite at random. Just a quarter of a century ago, which is approximately

the life of a business generation by the way, the United States first had a "favorable" balance in what is called "foreign trade," although merchandise only is meant, of $600,000,000. That was a new thing then, as to the size of the balance. Years before it had become a new thing for the balance to be "favorable" at all. The merchandise imports exceeded the merchandise exports for many years, and the country developed during that time, not in spite of but because of that precise thing. However, a business generation came into the field beginning with 1898 which looked upon this "favorable balance" averaging a half billion dollars a year as one of the great bulwarks of the success of business in America, almost as necessary as the Republican party and even more necessary than the Sherman law. The fact of course is that the whole thing is changed now. We were a debtor nation and had to pay our debtors with merchandise produced by the sweat of our brows, while now we are a creditor nation. Men talk about exporting our "surplus production" as if our production were fixed and could not be altered. We must export wheat, for instance, when the fact is that if the same proportion of our population were engaged in raising wheat as a half century ago, aided by modern improvements, the whole world would not have the facilities for getting that wheat.

For another illustration, a third of a century ago the more education a young man had the more money he could make. The poorest paid workers were those with strong backs and the best health. Now it is different. The man with a strong back, who can sweat without getting faint and doesn't mind getting some of mother earth on his hands, is paid very well. Stiff collars are very expensive. The price is much higher than before the war and there aren't as many thicknesses of fabric so that a collar doesn't stand humidity as well, but the chief expense by far is the smaller remuneration that goes with its wearing, as compared with the wages for the work that involves a strong back and sweating. Well, we shall have to adapt ourselves to the new circumstances.

The Observer is fully aware that there are men disposed to argue as to the aptness of the foregoing illustration and contend that we should do something different from quietly adapting ourselves to this thing. Very good. Let them write letters to the Steel and Metal Digest. The letters will be given careful consideration. The Observer makes bold to take as a third illustration something still more controversial, the conflict between our habit as a nation of considering ourselves isolated and the modern condition that makes isolation impossible. The difference is between regarding the Atlantic Ocean as something that separates us from Europe and something that closely connects us with Europe, quoting an illustration used by Robinson in "The Mind in the Making." As to isolation, if this be sarcastic, make the most of it, but these remarks are going to be closed by the words Cowper put in the mouth of Alexander Selkirk:

O Solitude, where are the charms
The sages have seen in thy face?
Better dwell in the midst of alarms
Than reign in this horrible place!

RAILROAD ELECTRIFICATION AND POWER SUPPLY

"Eventually the railroads of this country will be electrically operated," says the Electrical World. "Of that there is no doubt. Meanwhile, however, old-line steam-railroad men are doing all that is possible to prolong the present system by improving the efficiency of locomotives, lowering grades, eliminating curves, and so forth. This, of course, is praiseworthy, but it will not ward off the inevitable. It is well, however, for electrical engineers to recognize the situation and to visualize the immensity of the inertia to be overcome. Two weeks ago Julius Kruttschnitt, in an address before the International Railway Fuel Association, stressed the need of greater efficiency in the use of fuel by the railroads and indicated that thereby a reduction of 13% of expense is possible. For the future, Mr. Kruttschnitt says, the hope for conserving fuel lies in (1) substituting hydroelectric energy for steam, (2) substituting steam turbines or compound condensing engines for simple engines, (3) use of a cheap high-gravity fuel, (4) reduction in weight of Diesel engines sufficiently to permit of their use as locomotive engines, and (5) development of a satisfactory variable-speed transmission gear for coupling

the Diesel engine to the driving wheels of the locomotive.

"In that he chose electrification first Mr. Kruttschnitt did well, but that electrification depends on water power does not follow. Electricity can be produced in steam generating stations just as cheaply in many instances as from water power, and under certain conditions of load factor cheaper. What the railroads need is not conviction on the necessity of greater water-power development, but conversion to electrification. When this is accomplished they will find that electric light and power industry is not only prepared to supply all the energy they may need, but at a price that no railroad can afford to ignore. The railroads need never lack for electricity.

"In this connection the last two recommendations of Mr. Kruttchnitt may be commended to the thoughtful consideration of the manufacturers of electric railroad equipment. If Diesel engines ever become available for locomotives, electrification will be set back a generation and the manufacturers of electrical equipment will have only themselves to blame. It will be a sad day for them if the battle of the systems shall lead to such an outcome."

THE FUTURE OF INDUSTRY

From the very beginning of industry down to the present time the destructive periods of inflation and deflation in business have been accepted as inevitable and no serious attention has been given to the matter until recently. Herbert Hoover, Secretary of Commerce, has attacked the problem and succeeded in interesting different industrial groups in the matter of flattening out the cycles of abnormal prosperity and business depression. Every intelligent business man must realize that what used to be called a period of prosperity was but the forerunner of a time when both labor and capital would be subjected to unwholesome stagnation.

By proper precautionary measures medical science has succeeded in preventing the ravages of disease and plagues. Engineering has to a large extent devised ways and means of eliminating the devastating effects of floods and fires. Periods of plagues and famine no longer exist in civilized countries except as they apply to industry in the form of peaks and depressions of the business cycles, which attack labor and capital alike. It is these conditions that Mr. Hoover's business barometer is intended to prevent, and this is one of the outstanding undertakings of a permanent charcter of his administration. The American Construction Council for stabilization of the nation's building industry has the support of the Secretary and his department in the work it has undertaken.

Although the building industry is at this time attracting more attention than any other, practically every other business feels the effects of the depression of 1920 and 1921. Three years ago, when the inflation period began, many of the power companies believed that their plant and transmission systems were over-developed. As a result construction programs were retarded; even if it had been desired to go ahead with the work, the difficulties of financing the projects were such as to prevent any extensive scheme of development. Today industrial progress is being retarded on account of a power shortage. Furthermore, the power-machinery manufacturers have not the facilities for taking care of the demands. This condition has come about after two years of idle factories and unemployment. Looking back over the last three or four years, it is easy to see that the power-development program of the country should have been continued through the idle years, when the construction could have been easily taken care of.

The growth in power requirements is influenced by many factors; not only must the normal increase due to industrial expansion be considered, but such elements as new applications. The electric furnace is an example of this; within the last five or six years it has come to be an important factor in the power load in different part of the country. The coal shortage has greatly accelerated the growth of central-station loads. Many industrial plants have gone over to purchased power not so much from the question of cost as to be relieved from the difficulties and worry of obtaining sufficient coal to keep their plants running. Such influences as these and many others must be taken into consideration when projecting the demand curve into the future.—**Power.**

STATISTICAL PUBLICITY AND MARKETING OF ZINC

At the Fifth Annual Meeting of the American Zinc Institute held at St. Louis May 7th and 8th, among the addresses made was one by Mr. C. J. Trench, representing C. S. Trench & Company, Metal Brokers, New York City, as follows:

There are so many who are better equipped than myself to discuss the zinc market that I must attribute the invitation to address you as resting solely on the fact that I occupy the neutral position of being a broker.

You will agree that the miner is a natural born optimist, and both constitutionally and commercially is a "bull on the market". The smelter is also an optimist, although, when the purchase of ore is concerned, I understand he has been known to develop certain characteristics not wholly in keeping with his usual disposition, while the consumer, or, rather, I should say, the consumer's purchasing agent, seems on general principles to be always of the opinion that the market is higher than it ought to be.

I think that I may claim the right to talk impartially concerning the zinc market, for a broker's business merely calls for bringing the seller and buyer together without prejudice to the interests of either party.

I do not wish to tire you by relating the A. B. C.'s of the zinc market, and I would further state that I have no intention to offer any theories or suppositions as to the course of the market in the future. Like any other man a broker forms opinions as to future prospects, but he learns from experience that on most occasions it is advisable to look wise and say nothing.

The zinc market (I refer to Prime Western Zinc) differs from the markets on other non-ferrous metals in the respect that it lacks any definite and acknowledged leadership. In copper, the three or four largest producers set the pace, or sometimes hold the umbrella, by naming fixed selling prices; in lead, there is the official contract price of the American Smelting and Refining Company; Aluminum is produced and controlled by one concern with intermittent competition from imported metal; in tin, our English cousins, with the assistance of American operators, make the market each day on the London Metal Exchange, and antimony is generally governed by the offers from China.

Zinc, however, is a free-lance and, except on those occasions when London wields an influence through the possibility of either export or import business the market is established according to the offerings of a dozen or more producers and dealers on the one hand, and a varying number of buyers on the other hand. I do not mean to say that the offerings of each producer have a like value in determining the market price each day, but unlike the other metals I have mentioned, the quotations of no one particular interest are recognized as being a dominating factor. There may be some who suppose that the eastern market is established on the New York Metal Exchange, but an attendance at the daily call on the Exchange would immediately dispel any such thought. It is true that one or two of the members go through the ceremony there of making bids and offers, but these are almost invariably so far apart as to preclude any possibility of trading and during the past two years the sales on the floor have not averaged a carload a week; in fact, I believe I would be safe in saying that they were less than a carload a month.

As a general thing, the daily and weekly fluctuations in the price of zinc accurately represent the current state of supply and demand, for while the market is at times subjected to manipulation this is not a regular occurrence. The old practice of taking a block of one hundred or two hundred tons of zinc and "making a noise with it" has so often been shown up that it is seldom indulged in. To those who are not familiar with the meaning of this expression, I might say that it represents an attempt to lower the market by selling or offering to sell a very limited amount of metal. It consists of broadcasting offers around the trade with the purpose of creating the idea that there is a keen desire to sell, often supplemented by invitations to buyers to make bids at a lower price

than the offerer has any intention of selling at. In other words it is simply a form of camouflage which a close inspection invariably discloses in its true light.

There is sometimes the impression that the metal market is being depressed to affect ore prices, but often a decline which may appear to an ore seller as a matter of manipulation is really nothing other than an earnest and business-like attempt by the smelter to establish or retain contact with the metal buyer. In an advancing market the seller always hopes that when the summit is reached he will discover a plateau, but it usually proves to be a peak, and the buyer who has either willingly or forcibly accompanied the seller up the mountain immediately makes a break for the valley beneath with his friend at his heels. Of course, there is the possibility that the buyer may be compelled to come up again for supplies, but the fact that he may discover other supplies at lower levels usually deters the seller from camping out on the peak.

It seems to me that when the ore producer holds the opinion that the market is being artificially depressed, he has the choice either to refuse to sell his ore or else to hedge against his ore sales by buying metal. Some may be disposed to regard this latter procedure as being a speculation, but I disagree with them. The raiser of wheat is continually hedging by sales or purchases in the pit in Chicago, and without this he would be at the mercy of the millers and export buyers. He does not buy or sell options as a speculation, but as a hedge against his production, and through this medium he is able to select the time and price to market his output.

The firm I represent does not encourage outside speculation in zinc, but we do n consider that sales or puchases made by those actively engaged in any branch of the industry as being of such a character. I ask you, is it more of a speculation for the miner to sell future metal as a hedge against his ore output, or to buy future metal against unduly low pri es received for ore, than it is for the smelter to buy ore in advance of selling metal, or to sell metal in advance of buying his ore supplies? Please do not misunderstand me by thinking that I am urging the miner to enter the metal market, but as I know that there is often more or less friction between the mining and smelting interests, I have merely tried to point out that except in unusual times, when smelting operations largely exceed mine output, or when mine output largely exceeds smelting operations, the opportunities to realize fair prices are open to both.

I am heartily in favor of the movement to stabilize the zinc industry, and trust that your efforts along this line, which have already borne good results, will eventually gain their objective. Unfortunately, the wide swings in business conditions in this country, to say nothing of the conditions abroad, prevent for the present the accomplishment of perfect stabilization of zinc or any other commodity. However, as the effects of the war gradually wear off, I believe that business will settle down at a steady gait, and producers and manufacturers will not be called upon to adjust their operations to such fluctuating demands as we have experienced during the past four years. There can be no hope of stabilization when consumption drops from 90% down to 25% and 30%, as it did in 1921.

The stabilization of the zinc market on a paying basis both for miner and smelter is an accomplishment devoutly to be desired, but a movement aiming to establish and hold prices at or within certain fixed levels would be a dangerous interference with the law of supply and demand. Past performances have shown that efforts of producers of various commodities to make the market, instead of allowing the market to make itself, have invariably ended in failure.

The events of the past six weeks furnish an example of the difficulties which the market encounters. During January, February and the first half of March, consuming demands for zinc and nearly all other kinds of raw material were in tremendous volume, and then, almost as though it was cut off by a knife, the big, influential buying stopped. Any attempt to hold prices in the face of such a development would be a hazardous undertaking and probably end in eventual and undignified surrender. You have no doubt observed that, when the Wall Street market declines, the gilt edged securities are carried down along with the "cats and dogs," and, while the technical positions of the different metals are not all alike, yet values in every

case have dcelined during the past few weeks: Zinc from 8c to below 7c; lead from about 8½c to 7¼c; tin, from 51½c to 44½c, and antimony from 9c to 7⅝c. The same thing has occurred in cotton, rubber, grain and most of the other staple commodities, and the ladies, God bless them, seem to have made up their minds that sugar shall be shaken from its high pedestal.

I reflect the sentiment of the trade when I say that the zinc industry made a great step towards stabilization when it authorized the publication of monthly statistics. Showing, as they do, the production, deliveries and stocks on hand every month, they furnish both the miner and the smelter with an accurate gauge on which to base future operations. Should production at any time be allowed to greatly exceed deliveries, you will do it with your eyes wide open, because there is no longer any mystery regarding the statistical position. The signals hoisted every month can be seen by all, and consumers as well as producers can see whether they read "all clear," "caution" or "danger." By taking the buyers nto your confidence, you made an earnest bid for their good-will, and I believe you have it to a greater extent than you ever had it in the old days.

There is one suggestion I would like to offer, and that s that the statistics be made public to everyone on the same day instead of, as at present, being given to your producing members four or five days in advance. I don't see that you derive any advantages from this arrangement, and it is contrary to your policy of full publicity. Your Institute, I understand, was modeled along the lines of the American Iron and Steel Institute, and in issuing statistics you have followed the excellent examples set by them; but you have deviated to the extent of holding back your figures until your producing members have had an opportunity to digest them. The production figures on iron and steel are known to the man on the street as soon as they are to the steel producers themselves, and I am informed that the United States Steel Corporation's report of unfilled orders, which is issued on the tenth day of each month, is not even known to the officers of the Corporation in advance of its release to the public. You are doing fine work, gentlemen, on your publicity campaign; strengthen your position by laying your cards face up on the table as soon as they are dealt, and don't play stud poker even for four or five days a month.

I referred a minute ago to the benefits the metal buyers receive through the publication of your monthly statistics, and I wonder whether it has ever occurred to you to find out whether the consumers are willing to reciprocate. You are telling them all you know about your end of the business, while all you know about their end is what you are able to find out for yourself, namely, the monthly deliveries and the current demands, and the latter cannot even be properly tabulated. Deliveries for any given month do not represent actual consumption any more than do the purchases. I venture to say that the actual consumption of zinc in April, was the largest for any month yet, but there was a heavy falling off in purchases. The principal users of zinc, the sheet galvanizers, the brass mills and the zinc rollers, could, if they pleased, furnish valuable data regarding consumption, and, as they must recognize that your efforts to stabilize are as much in their interests as your own, they should be disposed to co-operate with you. The alternating booms and depressions in the metal markets are nearly if not quite as disturbing to the consumer as they are to the producer. Consumers desire fair prices and steady markets, and the inventory losses incurred during the slump in 1921 leaves a forcible memory that 4.00c zinc was a misfortune to every one.

Now, if this suggestion appeals to you, it is possible to make a start by ascertaining whether the makers of sheet and strip zinc, all of whom, I believe, are members of your Institute, are willing to make a monthly report of operations to your secretary, covering the total capacity of rolling mills, the percentage of capacity operating at the end of the month and the total output for the month. These figures, when grouped together, would give an absolute record of the sheet and strip trade, which, roughly speaking, uses about 15% of the metal output.

You cannot expect to obtain complete returns from the galvanizers, but, if the sheet steel galvanizers, who are, by

far the largest users, will make returns, it will furnish a good picture of the state of the galvanizing trade. The steel industry believes in full publicity, as evidenced by the detailed statistics issued by the American Iron and Steel Institute. The mills for some time have been reporting their yearly production of galvanized sheets, and who knows but that they would be willing to make monthly returns. In addition to actual output, a request for a statement showing the total number of galvanizing pots and the number employed at the end of the month would not be impertinent, for you are mentioning each month how many zinc retorts you are operating.

The principal brass manufacturers are members of the Copper and Brass Research Division, and, while the extensive publicity campaign which this association is engaged in has not gotten down to the point of issuing statistics, this will probably come in time. During the past few years the copper and brass manufacturers have certainly had occasions to regret that they have been deprived of monthly statistics on copper since the outbreak of the war in 1914. When the war was ended it was known to all that the copper industry had to be reorganized to meet altered conditions, but by May, 1919, it seemed to be headed along the proper path, and, governed by purely surface conditions, consumers bought heavily on an advancing scale of prices from 15c up to 23c. But when the Government's annual figures were issued they disclosed the fact that the surplus stocks of refined copper had risen during the year from 180,000,000 lbs. to 630,000,000 lbs., and a further increase occurred during 1920. The process of reorganization had to be undertaken all over again, and it is needless to remind you that nearly all of the principal copper producers were forced to close down entirely in 1921. No one claims that public monthly statistics would have enabled the copper industry to avoid all of the troubles it went through, but I do claim, and many agree with me, that they would have prevented a bad situation from getting worse.

You would not buy an automobile, especially a used one, merely on its outward appearance or on the seller's statement that the car is in good working order .You would insist on a demonstration, and the issuance of statistics furnish a demonstration of the state of an industry.

It should not be impossible to con vince the brass makers that publicity is beneficial to all parties, and it would not be surprising if the Copper and Brass Research Division responded to a reciprocity proposal by reporting capacities, operations and outputs of the brass mills. The figures would not be complete and, as a certain amount of scrap is used (we can be thankful that most of the ammunition scrap is now exhausted), they would not tell exactly how much new metal is going into brass, but they would show the general state of the industry.

As an illustration that one cannot tell how an invitation will be received, I would remind you of the old story told about the Hon. Jerry Simpson. He went to Washington with a reputation of being an able and big hearted man, but having certain peculiarities; one of his peculiarities, so the rumor went, was that he did not wear socks, and a New York newspaper sent one of its lady reporters to interview "Sockless" Jerry Simpson and ascertain whether there was any basis for the nickname. At that time, reciprocity was a leading issue. Meeting Mr. Simpson in the lobby of the Capitol, the lady fired the question at him: "It is true, Mr. Simpson that you do not wear socks?" to which he replied, "Well, mar'm I believe in reciprocity; if you will show me yours, I will show you mine." (Laughter)

In recent years the movement has all been in the direction of greater publicity, both in the matter of dress and other things, and I believe that consumers will co-operate in stabilizing the zinc business through publicity of all of the factors entering into the business.

I fear I am going beyond my allotted time, but there is one other suggestion I would like to make, now that I have the opportunity of addressing the members of the American Zinc Institute collectively, and that is the question of formulating and adopting a standard contract for zinc (metal). At present, there is a wide variety in the forms and substances of the contracts used by different sellers, many of them omitting certain conditions which are assumed to be accepted by both buyer and seller as a sort of unwritten agreement. I recall testifying some years ago to the trade

meaning of "f.o.b E. St. Louis basis," and the Judge's remark on that occasion was, "Well, if that is what it means, why don't you put it in the contract?" During the war, I understand that either the War Department or the Navy Department bought zinc on an E. St. Louis basis without having a clear understanding of what it meant, and payments involving very large amounts were held up until the thing was finally straightened out. There are many other points which could be covered in standard form of contract, detailing the rights and obligations of buyer and seller so completely as to leave no ground for controversy or disagreement. The consumers would probably be willing to co-operate with you on this matter also.

I realize that it is a touchy matter, but the question of uniform terms is another thing that you will want to consider one of these days. The ideal arrangement from a seller's standpoint, of cash against shipping documents is, perhaps, impossible of attainment, but the fixing of a small cash discount would probably encourage prompt settlements and would make a proper differential between cash payments and payments on arrival of material at destination.

I have said very little about the accomplishments of the American Zinc Institute during the past five years, but I can assure you that they have been observed and commended by the trade at large. It is the worthy representative of a splendid industry. Long life to it.

I am sure I have presumed on your patience by taking so much of your time, but it will be an object lesson to your Secretary, so that the next time a broker asks him what to talk about he will remember to say, "About ten minutes."

TRADE BALANCE MAY BE GOVERNED BY PRICES

The Federal Reserve Board's monthly bulletin points out that, in view of the falling off of gold imports into this country as compared with 1922 in connection with the foreign trade balance against this country recently, the rise in prices in foreign markets will modify the future balance more in favor of this country.

"An estimate of this balance," the bulletin says, "must include such invisible items as international investments, debt payments, tourist expenditures, and immigrant remittances. The most important fact, perhaps, is the present position of the United States as a creditor nation with further funds available for foreign investments.

"Foreign credit balances in this country arising out of net imports of merchandise may therefore, be used for the payment of interest and of foreign obligations held by individuals or the United States Government, rather than result in the exportation of gold. Or such credit balances may be transferred within the United States in settlement of private debts incurred under open account in previous years. To the extent that goods could be purchased as advantageously and cheaply here as abroad it is probable that additional funds arising out of continued imports of merchandise into the United States will be used to buy American goods for export. The future of the merchandise trade balance is thus affected by the relative price levels here and abroad.

Since October, 1922, wholesale prices in many foreign countries expressed in their own currencies have been rising much more rapidly than prices in the United States. This rise has not been accompanied by a corresponding decline in the dollar-exchange value of these currencies, with the result that foreign prices, when expressed in dollars (or gold), have risen sharply during recent months. Thus, while prices in the United States, according to the board's index, have risen 2.4%, between October, 1922 and April, 1923, prices expressed in terms of dollars have risen about 14% in England, 9% in France, 16% in Italy, 7% in the Netherlands, 11% in India and 7% in Japan. This readjustment of prices abroad, following earlier increases in this country, makes the United States a relatively more attractive market for foreign buyers than was the case a few months ago.

"Since the current unfavorable trade balance has been brought about chiefly by the importation of raw materials, largely from those countries which are not the most important purchasers of our products, the future of our merchandise balance will be influenced by the extent to which the demand for these materials by American industry continues."

TOPICAL TALKS ON IRON
CXXII- Ingots and Commercial Steel

What is called "the production of steel" is usually taken as the output of steel ingots and castings, but the commercial steel, the material traded in, is much less. The steel ingot is very convenient as a gauge or measure of capacity or production, but it is not the commodity of commerce.

In 1922 the production of pig iron was low relative to the production of steel, and the production of rolled steel was a trifle below the usual proportion to the tonnage of ingots. The statistics may be somewhat more interesting on that account. Production in 1922, in gross tons, was as follows:

Steel ingots	34,568,418
Steel castings	1,034,508
Ingots and castings..	35,602,926
Rolled steel	25,546,907
Rolled iron	905,097
Rolled iron and steel..	26,452,004

All the commercial material obtained from the ingots was reported as rolled steel, i.e., all the weight of ingots is accounted for except the scrap produced in rolling and shearing, the scale produced in rolling and such small quantity as was irretrievably lost.

The rule in making up the statistics of rolled steel is to take the material after it has passed its last hot rolling and shearing. Thus plates, sheets, etc., are sheared to two dimensions while bars, shapes, etc., are sheared to one dimension. Shapes are to specified lengtn, bars to random lengths. In catching the material at this point it occurs in some cases that the actual commercial material is not taken. Rods, for instance, make one of the items in the "finished rolled steel" given above, whereas the typical producer sells but a small portion of his rod output, drawing the major part into wire and converting much of the wire into nails, fence, etc. Again, skelp is an item in "finished rolled steel" whereas most of the skelp produced is finished into tubular goods at the plant making the skelp. In each case there is further loss, additional scrap being made.

On the other hand, in order that no material of commerce escape from the "finished rolled steel" tonnage two special inclusions are made. The ordinary billet, being an intermediate form in rolling, is not included, but there are two kinds of billets (and blooms) that are, those intended for forging purposes and those intended for export.

Using figures, for 1922, given in the above table, the finished rolled steel is 74% of the ingot tonnage. The loss in converting skelp, rods, etc., into merchantable material shipped would be about 1% of the total weight of ingots, making 73%. However, in most recent years rolled steel has been 76% rather than 74% of the ingots, hence it is an amply close generalization to say that the material which what is known as the steel making industry supplies to its custmoers is 75% of the weight of ingots the industry is reported as producing.

In the steel foundry some machining is done, whereby the commercial material does not measure up altogether to the weight of castings reported, but the chief production of scrap occurs before the castings are weighed. According ly, for statistical purposes steel castings should properly be grouped with rolled steel. The materials are practically cognate.

This grouping is not ideal either, however. There was a time, years ago, when many people thought the steel casting was going to supplant the iron casting. It has not done so, but it is a casting nevertheless. It is a matter of viewpoints. The steel foundry does produce steel. No one can deny that it is steel, and that it is made from pig iron and scrap, just as the ingot is. But from another angle, the commercial angle, the steel foundry is a foundry. The question is: Is a steel foundry a producer of steel or a producer of castings? If the latter, then statistically the production of steel castings should be grouped with the production of iron castings (gray and malleable) and not with either the production of steel ingots or the production of rolled steel.

There is one objection, however, to the grouping suggested above, and it will have to be admitted even by the most punctilious that it is a distinctly practical objection. That is, that there are no statistics of the production of

iron castings with which to group the production of steel castings. The output of the iron foundries is not reported.

The rolled iron, which ran over a million tons a year until 1921 and 1922, is produced chiefly from scrap. That it is not produced to any great extent by puddling pig iron is seen in the fact that no pig iron but forge pig iron would be used, and some forge pig iron is used in foundries, yet the total production of forge pig iron is but a fraction of the production of rolled iron. In 1912 it was about one-fifth as great, and the range has been generally between one-fourth and one-fifth.

Rolled iron is produced chiefly from scrap, while iron castings and steel castings both involve the use of considerable tonnages of scrap. The three industries combined use several million tons of scrap a year. Perhaps 5,000,000 tons would not be far out as their "normal" consumption of scrap if there were such a thing as a normal year which as a matter of fact there is not.

As to the consumption of scrap in making steel, language is usually employed very loosely, and the average man has but a hazy impression of what occurs. It is one thing to think of the matter as using scrap for the purpose of producing the steel which the steel mills sell and a totally different thing to think of the scrap which is charged into the open-hearth furnace. In the first case one is thinking of the material that goes into the steel plant and the material that comes out of it. In the other case one is thinking of the material that goes into the open-hearth furnace and the material that comes out. The difference is made by the fact that some material makes a round trip, part of the ingot becoming scrap and going back to the open-hearth furnace, so that it is weighed twice over the ingot scale. Scrap made in rolling Bessemer steel also goes into the open-hearth furnace. Before the open-hearth came much into vogue it went into the Bessemer converter and was often used for cooling purposes, when there was an oversupply of silicon in the pig iron. When the Bessemer converter was denied this scrap, on account of its being needed in the open-hearth, the blast furnace superintendents had to keep their silicon down to a limit. At first they did not like being interferred with in that way. That was a couple of decades or so ago.

Statements are often made that "steel" is made with 50% scrap and 50% pig iron, or 40% scrap and 60% pig iron, but that means no more than the ingot. It does not mean the steel of commerce.

In 1922, on account of the scarcity of pig iron due to the coal strike, the proportion of pig iron was unusually low and the proportion of scrap unusually high, but even in that year the steel sold was made chiefly of pig iron. The production of Bessemer and basic pig iron together with spiegeleisen and ferromanganese, with a little deduction for materials used elsewhere, was about 21,750,000 tons. In this there was carbon and silicon which simply had to go out, leaving about 20,500,000 tons of real iron to go into steel, and there was made 26,580,000 tons of steel castings and rolled steel, from which should be deducted something like 280,000 tons of scrap produced from skelp, rods, etc., in converting them into finished material for shipment out of the works, leaving 26,200,000 tons of commercial steel made out of 20,500,000 tons of iron, making 78%. That is the percentage for 1922 only. For other years the percentage would be higher. One would not have to go back many years to find a balance between the steel making pig iron and the finished product, the use of old material balancing the loss of carbon and silicon.

Large Bell Cast in Germany—What is claimed to be the largest serviceable bell in the world has recently been cast at Apolda, near Weimar, Germany, to replace the bell taken from the great cathedral in Cologne during the war. The original, known as the Kaiser bell, was cast in 1874 from French cannon captured in the Franco-Prussian war. It weighed nearly thirty tons, and was taken down and remelted into munitions of war during the recent world conflict. The new bell has been formally baptized St. Peter, but it is popularly referred to as the "German bell on the Rhine." It is nearly 11 feet high, 11 feet in diameter, and weighs more than 27 tons. Antique and religious figures and numerous inscriptions decorate the exterior surface of the bell around the upper part. The bell was made by one Master Heinrich Ulrich from a composition of copper 78 parts and tin 22 parts. — **The Foundry.**

PRODUCTION OF INGOTS, CASTINGS AND FINISHED STEEL PRODUCTS

Special Statistical Bulletin of the American Iron and Steel Institute Gives the Following Report of Production in 1922 Compared With Previous Years.

PRODUCTION OF STEEL INGOTS AND CASTINGS.

Years	Open-hearth Basic	Open-hearth Acid	Open-hearth Total	Bessemer	Crucible	Electric	Miscellaneous	Total Gr. tons
1907..	10,279,315	1,270,421	11,549,736	11,667,549	131,234	.....	14,075	23,362,594
1908..	7,140,425	696,304	7,836,729	6,116,755	63,631	.....	6,132	14,023,247
1909..	13,417,472	1,076,464	14,493,936	9,330,783	107,355	13,762	9,185	23,955,021
1910..	15,292,329	1,212,180	16,504,509	9,412,772	122,303	52,141	3,194	26,094,919
1911..	14,685,932	912,718	15,598,650	7,947,854	97,653	29,105	2,844	23,676,106
1912..	19,641,502	1,139,221	20,780,723	10,327,901	121,517	18,309	2,853	31,251,303
1913..	20,344,626	1,255,305	21,599,931	9,545,706	121,226	30,180	3,831	31,300,874
1914..	16,271,129	903,555	17,174,684	6,220,846	89,869	24,009	3,622	23,513,030
1915..	22,308,725	1,370,377	23,679,102	8,287,213	113,782	69,412	1,527	32,151,036
1916..	29,616,658	1,798,769	31,415,427	11,059,039	129,692	168,918	604	42,773,680
1917..	32,087,507	2,061,386	34,148,893	10,479,960	126,716	304,543	495	45,060,607
1918..	32,476,571	1,982,820	34,459,391	9,376,236	115,112	511,364	329	44,462,432
1919..	25,719,312	1,229,382	26,948,694	7,271,562	63,572	384,452	2,952	34,671,232
1920..	31,375,723	1,296,172	32,671,895	8,883,087	72,265	502,152	3,535	42,132,934
1921..	15,042,564	507,238	15,549,802	4,015,938	7,613	169,499	945	19,743,797
1922..	28,387,171	921,812	29,308,983	5,919,298	28,606	346,039	.....	35,602,926

PRODUCTION OF STEEL INGOTS.

1907..	9,912,839	890,372	10,803,211	11,634,276	121,001	.....	989	22,559,477
1908..	6,985,420	539,532	7,524,952	6,096,196	55,360	.....	519	13,677,027
1909..	13,111,467	781,429	13,892,896	9,296,969	94,672	13,456	786	23,298,779
1910..	14,858,353	782,805	15,641,158	9,354,437	107,671	50,821	...	25,154,087
1911..	14,419,306	608,153	15,027,459	7,890,753	83,623	27,227	417	23,029,479
1912..	19,197,504	712,371	19,909,875	10,259,151	100,967	14,147	542	30,284,682
1913..	19,884,465	805,250	20,689,715	9,465,200	103,655	20,973	587	30,280,130
1914..	15,936,985	633,382	16,570,367	6,154,964	78,683	15,458	312	22,819,784
1915..	21,975,622	968,148	22,943,770	8,194,737	99,026	46,348	331	31,284,212
1916..	29,011,146	1,227,832	30,238,978	10,916,248	120,341	126,048	302	41,401,917
1917..	31,528,939	1,406,798	32,935,737	10,320,688	122,882	239,632	261	43,619,200
1918..	31,970,691	1,347,870	33,318,561	9,215,392	113,782	403,068	219	43,051,022
1919..	25,405,347	780,827	26,186,174	7,172,743	62,563	272,942	373	33,694,795
1920..	30,926,393	759,102	31,685,495	8,778,107	70,536	346,956	298	40,881,392
1921..	14,824,607	290,750	15,115,357	3,977,129	6,877	84,404	317	19,184,084
1922..	27,961,190	517,045	28,478,235	5,871,565	27,561	191,057	.....	34,568,418

PRODUCTION OF STEEL CASTINGS

1908..	155,005	156,772	311,777	20,559	8,271	.....	5,613	346,220
1909..	306,005	295,035	601,040	33,814	12,683	306	8,399	656,242
1910..	433,976	429,375	863,351	58,335	14,632	1,320	3,194	940,832
1911..	266,626	304,565	571,191	57,101	14,030	1,878	2,427	646,627
1912..	443,998	426,850	870,848	68,750	20,550	4,162	2,311	966,621
1913..	460,161	450,055	910,216	80,506	17,571	9,207	3,244	1,020,744
1914..	334,144	270,173	604,317	65,882	11,186	8,551	3,310	693,246
1915..	333,103	402,229	735,332	92,476	14,756	23,064	1,196	866,824
1916..	605,512	570,937	1,176,449	142,791	9,351	42,870	302	1,371,763
1917..	558,568	654,588	1,213,156	159,272	3,834	64,911	234	1,441,407
1918..	505,880	634,950	1,140,830	160,844	1,330	108,296	110	1,411,410
1919..	313,965	448,555	762,520	98,819	1,009	111,510	2,579	976,437
1920..	449,330	537,070	986,400	104,980	1,729	155,196	3,237	1,251,542
1921..	217,957	216,488	434,445	38,809	736	85,095	628	559,713
1922..	425,981	404,767	830,748	47,733	1,045	154,982	.....	1,034,508

In 1922, 157 works in 24 States and the District of Columbia made steel ingots, against 160 works in 24 States and the District of Columia in 1921.

In 1922, 289 works in 32 States, the District of Columbia, Alaska, and the Canal Zone, Panama, made steel castings, against 290 works in 31 States, the District of Columbia, Alaska, and the Canal Zone, Panama, in 1921.

PRODUCTION OF BLACK PLATES FOR TINNING.

Years.	Iron.	Steel.	Total.	Years.	Iron.	Steel.	Total.
1904	2,981	469,588	472,569	1914	2,272	935,909	938,181
1905	3,152	504,435	507,587	1915	2,038	1,091,307	1,093,345
1906	5,666	570,413	576,079	1916	1,878	1,281,924	1,283,802
1907	3,161	500,911	504,072	1917	655	1,513,117	1,513,772
1908	2,954	510,817	513,771	1918	....	1,502,690	1,502,690
1909	4,261	602,221	606,482	1919	144	1,165,292	1,165,436
1910	2,893	709,244	712,137	1920	....	1,449,330	*1,449,330
1911	3,515	792,083	795,598	1921	....	786,962	*786,962
1912	5,378	976,819	982,197	1922	.....	1,266,652	*1,266,652
1913	2,779	824,487	827,266				

* Does not include about 7,459 tons of steel black sheets in 1921 and 18,059 tons in 1920 which were rolled on sheet mills and used in the manufacture of long terne plates.

Similar statistics for earlier years are not available. In 1921 34 works made black plates for tinning, against 35 in 1920.

PLATES AND SHEETS SEPARATELY.

Kinds of products.	Iron.	Steel.	Total.
Universal plates, inc. flats or bars over 6 in. wide:			
¼ of an inch and over in thickness.....	3,270	1,084,500	1,087,770
Under ¼ of an inch thick	.....	160,643	160,643
Total universal plates	3,270	1,245,143	1,248,413
Sheared plates:			
¼ of an inch and over in thickness.....	109	1,611,992	1,612,101
Under ¼ of an inch thick	60	559,346	559,406
Total sheared plates	169	2,171,338	2,171,507
Black sheets, made on either sheet or job mills:			
No. 12 gauge and thicker	1,792	299,234	301,026
No. 13 gauge and thinner	35,614	2,580,596	2,616,210
Total black sheets	37,406	2,879,830	2,917,236
Black plates rolled on tin mills:			
Black plates for tinning	.....	1,266,652	1,266,652
Other black plate specialties	.....	364,589	364,589
Total black plates rolled on tin mills	.....	1,631,241	1,631,241
Grand total of plates and sheets.....	40,845	7,927,552	7,968,397

COKE AND CHARCOAL TINPLATES, 1922.

States.	Coke Pounds.	Charcoal. Pounds.	Total. Pounds.
Pennsylvania	1,397,991,680	29,575,635	1,427,567,315
Maryland, West Virginia	436,993,259	25,215,317	462,208,576
Ohio, Indiana, Illinois	809,434,022	8,438,802	817,872,824
Total	*2,644,418,961	63,229,754	2,707,648,715

* Includes about 5,536,000 pounds which were formed or stamped from black plates by a company which manufactures tinplates, and tinned after the completion of the forming or stamping process.

PRODUCTION OF FINISHED ROLLED PRODUCTS

Years	Iron	Steel	Total	Years	Iron	Steel	Total
1911...	1,460,615	17,578,556	19,039,171	1917...	1,867,757	31,199,943	33,067,700
1912...	1,637,582	23,019,259	24,656,841	1918...	1,573,976	29,581,778	31,155,754
1913...	1,678,257	23,112,986	24,791,243	1919...	1,059,451	24,042,093	25,101,544
1914...	1,167,776	17,202,420	18,370,196	1920...	1,377,566	30,970,297	32,347,863
1915...	1,294,833	23,098,091	24,392,924	1921...	545,677	14,228,329	14,774,006
1916...	1,822,571	30,557,818	32,380,389	1922...	905,097	25,546,907	26,452,004

PRODUCTION OF TIN PLATES AND TERNE PLATES.

Years	Tin plates	Terne plates	Total lbs.
1891 (second 6 months)	368,400	1,868,343	2,236,743
1892 (calendar year)	13,921,296	28,197,896	42,119,192
1893	64,536,209	59,070,498	123,606,707
1894	102,223,407	64,120,002	166,343,409
1895	165,927,907	88,683,488	254,611,395
1896	270,151,785	89,058,013	359,209,798
1897 (first 6 months)	203,028,258	49,545,643	252,573,901
1897 (second 6 months)	.....	.....	322,205,619
1898 (calendar year)	.....	.....	732,289,600
1899	.....	.....	808,360,000
1900 (cen. year end. May 31)	707,718,239	141,285,783	*850,004,495
1901 (calendar year)	.....	.....	894,411,840
1902	.....	.....	806,400,000
1903	.....	.....	1,075,200,000
1904 (cen. year end. Dec. 31)	867,526,985	158,857,866	*1,032,940,706
1905 (calendar year)	.....	.....	1,105,440,000
1906	1,100,373,000	193,367,000	1,293,740,000
1907	996,650,000	156,447,000	1,153,097,000
1908	1,048,896,000	154,179,000	1,203,075,000
1909	1,179,858,000	190,930,000	1,370,788,000
1910	1,450,821,000	168,184,000	1,619,005,000
1911	1,597,629,000	158,441,000	1,756,070,000
1912	1,965,659,000	191,396,000	2,157,055,000
1913	1,708,186,000	136,944,000	1,845,130,000
1914	1,939,785,000	146,195,000	2,085,980,000
1915	2,201,825,054	163,470,646	2,365,295,700
1916	2,552,224,275	214,176,952	2,766,401,227
1917	3,233,314,911	153,891,653	3,387,206,564
1918	3,216,247,675	85,376,569	3,301,624,244
1919	2,407,156,757	†171,859,924	†2,579,016,681
1920	3,079,953,351	†158,067,437	†3,238,020,788
1921	1,675,320,852	†103,853,961	†1,779,174,813
1922	2,707,648,715	176,733,512	2,884,382,227

* Includes 1,000,473 pounds in 1900 and 6,555,855 pounds in 1904 of "other sheet iron and sheet steel, tin or terne plated." † Revised.

PRODUCTION OF IRON AND STEEL GALVANIZED SHEETS AND GALVANIZED FORMED PRODUCTS, 1913-1922.

Years.	Galvanized sheets.	Galvanized. formed products*	Total. Pounds.
1913	1,845,864,365	129,189,480	1,975,053,845
1914	1,807,667,129	131,603,609	1,939,270,738
1915	1,581,569,206	112,192,790	1,693,761,996
1916	1,346,924,950	130,302,195	1,477,227,145
1917	1,273,978,805	114,902,171	1,388,880,976
1918	1,159,778,807	121,110,267	1,280,889,074
1919	1,500,575,548	140,494,884	1,641,070,432
1920	1,871,360,951	143,894,730	2,015,255,681
1921	1,366,883,503	109,956,328	1,476,839,831
1922	2,109,991,396	165,713,067	2,275,704,463

* Articles formed or stamped from iron or steel black plates or black sheets and galvanized after the completion of the forming or stamping process.

PRODUCTION OF MERCHANT BARS.

Years.	Iron.	Steel.	Total	Years.	Iron.	Steel.	Total.
1905 ..	1,322,439	2,271,162	3,593,601	1914 ..	563,171	1,960,460	2,523,631
1906 ..	1,481,348	2,510,852	3,992,200	1915 ..	657,107	3,474,135	4,131,242
1907 ..	1,440,356	2,530,632	3,970,988	1916 ..	993,948	5,236,354	6,230,302
1908 ..	685,233	1,301,405	1,986,638	1917 ..	983,926	5,226,031	6,209,957
1909 ..	952,230	2,311,301	3,263,531	1918 ..	846,898	5,395,851	6,242,749
1910 ..	1,074,163	2,711,568	3,785,731	1919 ..	446,549	3,945,075	4,391,624
1911 ..	835,625	2,211,737	3,047,362	1920 ..	663,032	5,467,208	6,130,240
1912 ..	944,790	2,752,324	3,697,114	1921 ..	198,324	1,367,430	1,565,754
1913 ..	1,026,632	2,930,977	3,957,609	1922 ..	317,665	3,660,993	3,978,658

Statistics are not available prior to 1905. Horseshoe bars, bolt and nut rods, spike and chain rods, concrete bars, etc., are not included.

ROLLED IRON AND STEEL.

In 1922 the production of all kinds of iron and steel rolled into finished forms shows an increase of 11,677,998 tons, or 79.04%, as compared with 1921.

Total Production of All Kinds of Finished Rolled Iron and Steel, 1887-1921.

Years	Iron and steel rails	Plates and sheets	Nail plate	Wire rods	Structural shapes	All other finished rolled products	Total Gr. tons
1887.....	2,139,640	603,355	308,432	.....	.....	2,184,279	5,235,706
1888.....	1,403,700	609,827	289,891	279,769	.....	2,034,162	4,617,349
1889.....	1,522,204	716,496	259,409	363,851	.....	2,374,968	5,236,928
1890.....	1,885,307	809,981	251,828	457,099	.....	2,618,660	6,022,875
1891.....	1,307,176	678,927	223,312	536,607	.....	2,644,941	5,390,963
1892.....	1,551,844	751,460	201,242	627,829	453,957	2,579,482	6,165,814
1893.....	1,136,458	674,345	136,113	537,272	387,307	2,104,190	4,975,685
1894.....	1,021,772	682,900	108,262	673,402	360,305	1,795,570	4,642,211
1895.....	1,306,135	991,459	95,085	791,130	517,920	2,487,845	6,189,574
1896.....	1,122,010	965,776	72,137	623,986	495,571	2,236,361	5,515,841
1897.....	1,647,892	1,207,286	94,054	970,736	583,790	2,497,970	7,001,728
1898.....	1,981,241	1,448,301	70,188	1,071,683	702,197	3,239,760	8,513,370
1899.....	2,272,700	1,903,505	85,015	1,036,398	850,376	4,146,425	10,294,419
1900.....	2,385,682	1,794,528	70,245	846,291	815,161	3,575,536	9,487,443
1901.....	2,874,639	2,254,425	68,850	1,365,934	1,013,150	4,772,329	12,349,327
1902.....	2,947,933	2,665,409	72,936	1,574,293	1,300,326	5,383,219	13,944,116
1903.....	2,992,477	2,599,665	64,102	1,503,455	1,095,813	4,952,185	13,207,697
1904.....	2,284,711	2,421,398	61,601	1,699,028	949,146	4,597,497	12,013,381
1905.....	3,375,929	3,532,230	64,542	1,808,688	1,660,519	6,398,107	16,840,015
1906.....	3,977,887	4,182,156	54,211	1,871,614	2,118,772	7,383,828	19,588,468
1907.....	3,633,654	4,248,832	52,027	2,017,583	1,940,352	7,972,374	19,864,822
1908.....	1,921,015	2,649,693	45,747	1,816,949	1,083,181	4,311,608	11,828,193
1909.....	3,023,845	4,234,346	63,746	2,335,685	2,275,562	7,711,506	19,644,690
1910.....	3,636,031	4,955,484	45,294	2,241,830	2,266,890	8,475,750	21,621,279
1911.....	2,822,790	4,488,049	48,522	2,450,453	1,912,367	7,316,990	19,039,171
1912.....	3,327,915	5,875,080	45,331	2,653,553	2,846,487	9,908,475	24,656,841
1913.....	3,502,780	5,751,037	37,503	2,464,807	3,004,972	10,030,144	24,791,243
1914.....	1,945,095	4,719,246	38,573	2,431,714	2,031,124	7,204,444	18,370,196
1915.....	2,204,203	6,077,694	31,929	3,095,907	2,437,003	10,546,188	24,392,924
1916.....	2,854,518	7,453,980	30,088	3,518,746	3,029,964	15,493,093	32,380,389
1917.....	2,944,161	8,267,616	22,864	3,137,138	3,110,000	15,585,921	33,067,700
1918.....	2,540,892	8,799,135	18,310	2,562,390	2,849,969	14,385,058	31,155,754
1919.....	2,203,843	7,372,814	12,832	2,538,476	2,614,036	10,359,543	25,101,544
1920.....	2,604,116	9,337,680	20,577	3,136,907	3,306,748	13,941,835	32,347,863
1921.....	2,178,818	4,260,574	14,573	1,564,330	1,272,624	5,483,087	14,774,006
1922.....	2,171,776	7,968,397	21,969	2,654,741	2,718,768	10,916,353	26,452,004

Blooms, billets and axle blanks rolled for forging purposes are included from 1905, while semi-finished products rolled for export are included for 1912 and subsequent years. Prior to 1892 structural shapes were included in "all other finished rolled."

By Processes, Gross Tons, 1922.

Processes	Ingots	Castings	Total
Open-hearth steel—basic	1,341,807	1,792	1,343,599
Open-hearth steel—acid	66,285	26,438	92,723
Bessemer steel	89,234	13,064	102,298
Crucible steel	9,407	50	9,457
Electric and miscellaneous steel	107,659	17,760	125,419
Total, Gross tons.....	1,614,392	59,104	1,673,496

In 1922 there were 138 works in 23 States and the District of Columbia which made alloy steel ingots or castings.

PRODUCTION OF UNIVERSAL PLATES, 1922

Width of universal plates	Iron	Steel	Total
Under 30 inches wide.....	3,270	1,020,437	1,023,707
30 inches wide but under 48 inches wide.....	....	136,776	136,776
48 inches wide and over	....	87,930	87,930
Total.....	3,270	1,245,143	1,248,413

PRODUCTION OF CUT AND WIRE NAILS.

Production of Wire Nails in 100-lb. Kegs, 1891-1922.

Years.	Production.	Exports.	Consumption.	Years.	Production.	Exports.	Consumption.
1891..	4,114,385	18,986	4,095,399	1907.	11,731,044	945,035	10,786,009
1892..	4,719,524	21,387	4,698,137	1908.	10,662,972	593,819	19,069,153
1893..	5,095,945	27,451	5,068,494	1909.	13,916,053	686,687	13,229,366
1894..	5,681,801	38,920	5,642,881	1910.	12,704,902	960,295	11,744,607
1895..	5,841,403	53,012	5,788,391	1911.	13,437,778	1,200,957	12,236,821
1896..	4,719,860	95,638	4,624,222	1912.	14,659,700	1,530,353	13,129,347
1897..	8,997,245	129,767	8,867,478	1913.	13,559,727	977,477	12,582,250
1898..	7,418,475	307,190	7,111,285	1914.	13,132,814	809,167	12,323,647
1899..	7,618,130	750,781	6,867,349	1915.	14,583,026	2,051,475	12,531,551
1900..	7,233,979	613,858	6,620,121	1916.	17,147,665	3,363,876	13,783,789
1901..	9,803,822	420,506	9,383,316	1917.	17,040,666	2,574,054	14,466,612
1902.	10,982,246	595,391	10,386,855	1918.	12,279,800	1,763,460	10,516,340
1903..	9,631,661	704,546	8,927,115	1919.	13,094,221	2,011,045	11,083,176
1904.	11,926,661	734,554	11,192,107	1920.	16,449,506	2,087,195	14,362,311
1905.	10,854,892	799,734	10,055,158	1921.	11,889,412	629,650	11,259,762
1906.	11,486,647	1,035,705	10,450,942	1922.	15,053,330	1,232,467	13,820,863

PIPES AND TUBES

Kinds of pipe	1921—Gross tons			1922—Gross tons.		
	Iron.	Steel.	Total.	Iron.	Steel.	Total.
Black, standard	45,337	685,459	730,796	87,154	973,906	1,061,060
Galvanized	20,937	246,122	267,059	30,852	359,288	390,140
Oil country goods..	29,026	862,969	891,995	33,223	1,106,611	1,139,834
O. D. and misc.	104	40,355	40,459	62	66,713	66,775
Boiler tubes	14,889	42,244	57,133	19,944	54,483	74,427
Total	110,293	1,877,149	1,987,442	171,235	2,561,001	2,732,236

In 1922 there were 25 active works, of which 19 made black, 14 made galvanized, 15 made oil country goods, 11 made O. D. and miscellaneous pipe, and 9 made boiler tubes.

PRODUCTION OF CONCRETE BARS.

Years.	Iron.	Steel.	Total.	Years.	Iron.	Steel.	Total.
1909		159,352	159,352	1916 ..	2,683	458,717	461,400
1910 ..	4,645	236,464	241,109	1917 ..	1,497	469,687	471,184
1911 ..	2,388	256,353	258,741	1918 ..	468	344,152	344,620
1912 ..	2,500	271,832	274,332	1919 ..	2,295	416,726	419,021
1913 ..	113	319,557	319,670	1920 ..	698	571,747	572,445
1914		288,471	288,471	1921 ..	1,094	226,134	227,228
1915		353,408	353,408	1922 ..	696	575,120	575,816

Statistics are not available prior to 1909.

PRODUCTION OF SKELP.

Production of Skelp, Showing Iron and Steel Skelp Separately, Gross Tons, 1905-1922.

Years	Iron	Steel	Total	Years	Iron	Steel	Total
1905	452,797	983,198	1,435,995	1914	264,340	1,718,091	1,982,431
1906	391,517	1,137,068	1,528,585	1915	262,198	2,037,266	2,299,464
1907	444,536	1,358,091	1,802,627	1916	355,445	2,572,229	2,927,674
1908	297,049	853,534	1,150,583	1917	336,591	2,337,640	2,674,231
1909	370,151	1,663,230	2,033,381	1918	258,500	2,305,511	2,564,011
1910	350,578	1,477,616	1,828,194	1919	192,146	2,363,632	2,555,778
1911	322,397	1,658,276	1,980,673	1920	252,403	2,967,886	3,220,289
1912	327,012	2,119,804	2,446,816	1921	115,523	1,815,052	1,930,575
1913	312,746	2,189,218	2,501,964	1922	218,868	2,640,227	2,859,095

Statistics are not available prior to 1905.

PRODUCTION OF SEAMLESS STEEL TUBES

Years.	Hot finished	Cold drawn.	Total.	Years.	Hot finished.	Cold drawn.	Total.
1913	42,740	65,827	108,567	1918	142,308	150,586	292,894
1914	36,939	53,656	90,595	1919	75,864	121,505	197,369
1915	63,488	76,180	139,668	1920	132,091	159,479	291,570
1916	61,235	129,238	190,473	1921	59,663	58,221	117,884
1917	87,615	139,060	226,675	1922	120,652	137,183	257,835

PRODUCTION OF FINISHED ROLLED IRON AND STEEL, 1922

Products	Iron	Steel	Total
Rails	.....	2,171,776	2,171,776
Plates and sheets	40,845	7,927,552	7,968,397
Nail and spike plate	154	21,815	21,969
Wire rods	665	2,654,076	2,654,741
Structural shapes	1,789	2,716,979	2,718,768
Merchant bars	317,665	3,660,993	3,978,658
Bars for reinforced concrete work	696	575,120	575,816
Skelp, flue, and pipe iron or steel	218,868	2,640,227	2,859,095
Hoops	.....	222,139	222,139
Bands and cotton-ties	2,678	268,423	271,101
Long angle splice bars, tie-plate bars, etc	59,644	546,044	605,688
Rolled sheet piling, not including fabricated	.....	13,220	13,220
Railroad ties	.....	14,811	14,811
Rolled forging blooms, forging billets, etc	186	326,117	*326,303
Blooms, billets, sheet bars, etc., for export	.....	11,299	11,299
All other finished rolled products	261,907	1,776,316	2,038,223
Total, Gross tons	905,097	25,546,907	26,452,004

* Includes exports.

In addition to the 13,220 tons of rolled sheet piling above reported there were produced by rolling mills and steel works in 1922 about 7,425 tons of fabricated sheet piling, as compared w th 5,501 tons of the same kind of piling in 1921.

CAST IRON PIPE AND FITTINGS, NET TONS

Years.	gas and water.*	Soil and plumbers.	Total.	Years.	gas and water.*	Soil and plumbers.	Total.
1913 ...	1,010,016	256,229	1,266,245	1918 ...	508,300	111,373	619,673
1914 ...	938,297	222,483	1,160,780	1919 ...	514,664	195,417	710,081
1915 ...	956,372	258,498	1,214,870	1920 ...	636,862	249,653	886,515
1916 ...	934,626	279,707	1,214,333	1921 ...	564,138	230,092	794,230
1917 ...	748,173	250,928	999,101	1922 ...	926,577	356,872	1,283,449

* Includes culvert pipe. Manufacturers able to separate their production report 17,645 tons of culvert pipe and fittings in 1922 and 11,317 tons in 1921.

FORGED IRON AND STEEL

Years	Production—Gross tons. Iron.	Steel.	Total.	Years	Production—Gross tons. Iron.	Steel.	Total.
1912..	9,155	383,365	392,520	1918..	24,458	1,271,108	1,295,566
1913..	27,892	380,091	407,983	1919..	23,822	510,524	534,346
1914..	3,675	337,746	341,421	1920..	38,063	502,041	540,104
1915..	2,814	520,909	523,723	1921..	18,721	*295,417	*314,138
1916..	3,352	920,415	923,767	1922..	25,593	345,802	371,395
1917..	8,772	1,069,993	1,078,765				

* Revised.

PRODUCTION OF WIRE RODS.

Years.	Tons.	Years.	Tons.	Years.	Tons.	Years.	Tons.
1891 ...	536,607	1899 ...	1,036,398	1907 ...	2,017,583	1915 ...	3,095,907
1892 ...	627,829	1900 ...	846,291	1908 ...	1,816,949	1916 ...	3,518,746
1893 ...	537,272	1901 ...	1,365,934	1909 ...	2,335,685	1917 ...	3,137,138
1894 ...	673,402	1902 ...	1,574,293	1910 ...	2,241,830	1918 ...	2,562,390
1895 ...	791,130	1903 ...	1,503,455	1911 ...	2,450,453	1919 ...	2,538,476
1896 ...	623,986	1904 ...	1,699,028	1912 ...	2,653,553	1920 ...	3,136,907
1897 ...	970,736	1905 ...	1,808,688	1913 ...	2,464,807	1921 ...	1,564,330
1898 ..	1,071,683	1906 ...	1,871,614	1914 ...	2,431,714	1922 ...	2,654,741

Small quantities of copper-clad steel wire rods are included.

MISCELLANEOUS ROLLED PRODUCTS

Products	1918.	1919.	1920.	1921.	1922.
Hoops	262,281	233,336	333,440	166,961	222,139
Bands and cotton-ties	250,767	352,172	388,862	111,426	271,101
Long angle splice bars, fish plate bars, tieplate bars, etc.	416,905	434,008	575,830	423,820	605,688
Rolled sheet piling	11,689	17,811	20,716	18,165	13,220
Railroad ties	6,438	16,645	26,310	10,361	14,811
Rolled forging blooms, forging billets, etc.	*1,659,118	*359,582	*447,334	*108,456	*326,303
Blooms, billets, sheets, bars, tinplate bars, etc. for export	832,746	92,143	136,457	7,506	11,299
Spike and chain rods, bolt and nut rods, horseshoe bars, strips, shafting, tires, etc.	1,793,734	1,487,423	2,089,912	912,835	2,038,223
Total	5,223,678	2,993,120	4,018,861	1,759,530	3,502,784

* Exports included.

PRODUCTION OF STRUCTURAL SHAPES

Years.	Tons.	Years.	Tons.	Years.	Tons.
1902	1,300,326	1909	2,275,562	1916	3,029,964
1903	1,095,813	1910	2,266,890	1917	3,110,000
1904	949,146	1911	1,912,367	1918	2,849,969
1905	1,660,519	1912	2,846,487	1919	2,614,036
1906	2,118,772	1913	3,004,972	1920	3,306,748
1907	1,940,352	1914	2,031,124	1921	1,272,624
1908	1,083,181	1915	2,437,003	1922	2,718,768

PRODUCTION OF PLATES AND SHEETS

Years	Gross tons	Years	Gross tons	Years	Gross tons
1893	674,345	1903	2,599,665	1913	5,751,037
1894	682,900	1904	2,421,398	1914	4,719,246
1895	991,459	1905	3,532,230	1915	6,077,694
1896	965,776	1906	4,182,156	1916	7,453,980
1897	1,207,286	1907	4,248,832	1917	8,267,616
1898	1,448,301	1908	2,649,693	1918	8,799,135
1899	1,903,505	1909	4,234,346	1919	7,372,814
1900	1,794,528	1910	4,955,484	1920	9,337,680
1901	2,254,425	1911	4,488,049	1921	4,260,574
1902	2,665,409	1912	5,875,080	1922	7,968,397

PRODUCTION OF ALLOY STEEL INGOTS AND CASTINGS.

Years	Ingots	Castings	Total	Years	Ingots	Castings	Total
1909	158,978	23,002	181,980	1916	1,306,157	56,458	1,362,615
1910	538,462	29,357	567,819	1917	1,576,806	67,529	1,644,335
1911	425,169	56,290	481,459	1918	1,721,367	66,485	1,787,852
1912	689,392	103,109	792,501	1919	1,435,816	45,372	1,481,188
1913	625,430	88,927	714,357	1920	1,591,939	68,353	1,660,292
1914	577,107	69,846	646,953	1921	769,293	40,255	809,548
1915	923,251	97,896	1,021,147	1922	1,614,392	59,104	1,673,496

Similar statistics are not available prior to 1909.

RAIL JOINTS AND FASTENINGS

Kinds.	1921—Gross tons			1922—Gross tons.		
	Iron.	Steel.	Total.	Iron	Steel.	Total.
Angle splice bars	917	118,033	118,950	2,082	157,142	159,224
Tie plates	43,811	183,449	227,260	55,806	280,783	336,589
Fish plates	107	6,616	6,723	384	10,087	10,471
Other rail joints	.....	41,740	41,740	.....	31,355	31,355
Total	44,835	349,838	394,673	58,272	479,367	537,639

TECHNICAL AND COMMERCIAL ABSTRACTS

Coal Miners Seeking to Capture the Country—"Apparently skirmish lines are being thrown out by the United Mine Workers of America in their renewed battle to force the non-union coal mines of West Virginia and the Appalachian district generally to permit unionization of all these fields," says the **Manufacturer's Record.** "If this should be accomplished, the United Mine Workers would be in possession of autocratic power over coal mining in America. With the power to absolutely dominate the coal industry, all industry would be subject to the whims of the officers of the United Mine Workers of America, and prices of coal, and prices in all industries in fact, would be subject to the dictates of the autocratic power held by the officers of the Miners' Union. Stripped of all demagogy and camouflage, the issue is whether the coal industry in all parts of the United States shall be delivered, bound hand and foot, to the officials of the United Mine Workers, with absolute power to throttle not only the mining industry but every industry in the country, not only wages, hours of work, quantity of production and prices of products would then be dictated in all industry, and serfdom to the miner autocrats would be the condition of the whole country."

IRON AND STEEL

Super-Heat in the Steel Industry—"Of the many apparatuses that have been invented and placed in use for the purpose of saving fuel, there is none that can compare with the superheater in the production of higher economics of the generating units for the small amount of capital invested and its low maintenance cost," says **The Blast Furnace and Steel Plant.** "This fact has been so thoroughly demonstrated that no modern steam plant is now built without its use. While superheaters have been known for many years, it is only within the past ten years that a recognition of its great advantages has become general, particularly the use of high degrees of superheat. For this reason there are a great many large and small steam plants now operating without superheated steam. Generally these are the plants that are quite inefficient and can be benefited most by the application of superheaters. It has been argued that inefficient plants should be scrapped and replaced entirely, but the tremendous increase in cost of new construction and the great demand for capital for additions and reconstrucitons, due to the war, make many replacements impossible. The steel plant manager is particularly interested in the economical consumption of steam, as large quantities of fuel are used in every step of steel production, and is a big item in its manufacturing cost."

Some Effects of Zirconium in Steel—This was the title of a paper prepared by F. M. Becket, directing head of the Electro Metallurgical Company of America, and read before the American Electro-Chemical Society at the Spring meeting, and featured in a recent issue of **Iron Age.** Numerous experiments on the reduction of zirconium ores and the preparation of zirconium alloys were conducted at the Niagara Falls plant of the Electro-Metallurgical Company during the period of a few years immediately preceding the entry of the United States into the war. Early in the year 1918, having been influenced by apparently authentic reports concerning the use by Germany of remarkable ordnance steel containing zirconium — reports which were later considered groundless, if the author has been correctly informed —the War Industries Board decided upon an intensive program of experimentation with zirconium in steel for light armor, the direct object being the earliest possible large-scale production, and the Electro-Chemical Society was requested to furnish zirconium alloys with this end in view.

Sheet Capacity Meets Peak Loads—Were there no periods of peak demand for steel sheets, about 30% of the present mill capacity of this kind in the United States would be superfluous. Statistics of this branch of the steel industry reveal that the 659 mills have an annual capacity of 4,500,000 net tons. The minimum annual demand for sheets was 2,000,000 tons, and the peak absorption has reached 8,000,000 tons. The average for a number of years has been 3,200,000 tons. This average demand is

sufficient to engage 72% of mill capacity. If buying could be stabilized and spread out so that production might proceed continuously and without periods of idleness at one time and of high pressure and delayed deliveries at the other, present mill capacity might be cut down and all needs of the country be met. Study of these figures may explain why sheet mills so frequently cut prices to obtain tonnage, while at other times they are able to obtain lucrative premiums for service in the form of prompt delivery, special stock, etc.—**Iron Trade Review.**

Shells in Strip Steel—The result of an analysis of data on open-hearth practice resulting in shelly strip steel, made by F. B. Foley, metallurgist at the Mississippi Valley experiment station of the U. S. Bureau of Mines, at Rolla, Mo., showed that heats that produced shells are shorter heats, that they take more ore and less spar, and that they give a lighter ladle skull than those that produce metal free from shells. The indication is that shells are the result of running the heat in the open-hearth too hot and bringing down the carbon too fast by oreing. The metal is thus apparently over-oxidized.—**Iron and Steel of Canada.**

Why the Gary Steel Plant Was Built—Under the heading "Interesting Facts About Sales Policies," the **Iron Age** gives a resume of the testimony of J. I. Andrews, general manager of sales for the American Sheet and Tin Plate Company, before the Federal Trade Commission on the basing point question at Pittsburgh, and says: "The Gary steel plant was built for the purpose of supplying the west, witness stated, with no thought of producing specialties. Plans for building a plant in the eastern district similar to that at Gary to supply the automotive industry had been deferred several times in the past few years, on account of the excessive cost of such a plant. The company had not kept pace with the expansion in the sheet industry, he said, in explanation for his statement that it now had only 24% of the country's capacity. The American Sheet and Tin Plate Company had 264 tin mills, or about 44% of the country's total capacity, and that of its own total 48 were located at Gary. Mr. Andrews said that there had been no normal times in the sheet industry since 1916 and that in three of the last six years the country had been obliged to allocate its production of both sheets and tin plate; indeed, his principal function in recent years had been to allocate tonnages rather than market them in the ordinary way. The witness stated that over a period of years prices of his company averaged higher than those of competitors, and explained this by stating that large buyers were satisfied to pay more when assured that, barring accidents, they will get tonnages ordered and their orders will not be crowded off the books by premium business."

The Value of Impact Tests—The practical as well as technical value of certain impact tests of forged steel was given new emphasis at the sectional meeting of American steel heaters at Bethlehem, Pa. The conflicting results of other tests of the same nature were also shown. It was brought out in a careful series of Charpy impact tests that some steels possess greater resistance to breakage by impact blows at certain temperatures than at others, and that a veriation in heat treatment renders some of these steels more resistant at lower temperatures than at the higher. Such knowledge also explains the behavior of steel under certain service conditions which was not fully understood and which tensile tests did not reveal. The testimony by another investigator that his own Izod impact tests on steels were not comparable with those obtained by the Charpy machine raises a question as to the value of such tests in general. Undoubtedly impact test methods can furnish a measure of the work necessary to rupture steel, but results of real value cannot be obtained unless the various methods are standardized. As in hardness tests, where the Brinell machine has become the standard, some machine or some test bar should be recommended as a standard in impact tests, so that the valuable data which are possible can be correlated and used. Some work of this nature is being done, but its speedy completion is a necessity.—**Iron Age.**

Electric Equipment for Ford Rolling Mills—An alternating current motor of no less than 8,000 h.p. capacity is being designed by the General Electric Company for the use at the River Rouge plant of the Ford Motor Company, for driving a blooming mill. Alloy steel is expected to be the principal product of the Ford steel mills, which will include a merchant mill to be driven by a 4,500-h.p. direct current motor, supplied from four 2,000 kw. motor-generator sets. Ultimately it is expected that this plant will expand its production to make substantially all the steels which go into the Ford car. The General Eelectric Company reports a recent order from the Ford Motor Company covering fifteen 1,500 kw. motor-generator sets, three 10,000-kw. auto-transformers, and 44 mill motors, ranging in size from 4 h.p. to 100 h.p.—**Iron Age.**

What Is Alloy Steel?—There is some difference of opinion as to just what an alloy steel is. At the convention of the electro-chemists in New York the view was given prominence that "alloy-treated steels" are decidedly different from alloy steels, and that unless radical or revolutionary properties are bestowed on a steel by the addition of an alloying element, the resulting product should be considered as an alloy-treated steel rather than as alloy steel. Manifestly the effort to maintain such a distinction would result in great confusion, statistically and otherwise. There are many steels having marked physical properties which contain only small percentages of an element such as vanadium, molybdenum or zirconium. Chromium also and some other metals enter into certain special steels in only small percentages. The contention of some that an alloy steel must contain fairly large proportions of the alloying metal is not a practicable basis for definition.—**Iron Age.**

MACHINERY

Care of Small Tools—There are many machine shops where pride is taken in the keeping of small tools in first-class condition, and where they are stored neatly and accessibly. It is a pleasure to go into the tool room of such shops and inspect the shelves and drawers of small tools, all properly labeled or marked, all bright and shining and with sharp edges. It is a real pleasure until one begins to look a little closer. Then it becomes evident that there are faults possible in small tools which are not visible to the casual observer. Here is a drill which looks good until we use it for what it was intended, making holes. Then we discover that only one lip is cutting. Poor grinding. Here is another one; we can file one lip without any trouble. It had been burned, and not enough metal was ground away. Here is a broad nosed planer finishing tool. The edge is not straight; it will make a series of grooves instead of a plane surface, and the finish that it leaves will require an excessive amount of scraping. There is a milling cutter with burrs in the inner edge of the teeth, ground in the wrong direction. There is another one, hard all over except at the cutting edge; too vigorous grinding and probably toward the edge instead of away from it. Here is a chucking reamer of correct diameter and beautifully finish ground, but the corners of the teeth are not rounded. Be careful with this tool, run slow and with moderate feed, or else the chips will stick to the corners and scratch the work. The rounded corners would have allowed greater speed, more feed, longer life, and would have avoided spoiled work. — **American Machinist.**

Handicapped Machine Tool Building—"Machine tool building as an industry, hampered by its feast-and-famine habit, has suffered again from the bidding away of labor from its shops, particularly by its customers of the mass production class," says the **Iron Age.** "Too many machine tool builders seem to lack the decision, shown by their competitors in the labor market, to put prices where costs are fully covered, as should be possible in times of good demand. One handicap is that they are the last to receive the impulse of a boom and often are the first to feel the industrial slump. And their problem of keeping in continuous operation is complex. Yet they must have mechanics of the highest order. What the machine tool builder could wish for is a stiffer attitude among his fellow manufacturers, to the end that their products should bring a profitable margin and a better understanding among buyers of the cost factors which justify the prices asked."

Standard Names for Machine Parts—No matter where one goes the need of a standard nomenclature for machines and their elements is everywhere apparent. The more isolated the district the greater the delay, annoyance and cost of not knowing what the other bellow means by the name he gives a certain kind of bolt, or screw, or part of a machine. One concern has been forced to sketch every part wanted and describe it in as much detail as seems necessary. This has been brought about by costly delays and expense in having the wrong part sent for what seemed to be a simple part, simply named. There is also a remnant of the old confusion as to the threads of a half-inch bolt in some parts of the country. A recent complaint in the middle west states that both twelve and thirteen threads to the inch are still supplied by some large bolt makers, and that you are apt to get one or the other unless you specify which is desired. This lack of standardization adds to the cost of doing business and makes it unnecessarily difficult for supply parts to be secured promptly. Individuality has its place, but the automotive industry has shown us the way toward the advantages of standardized elements used in construction.—**American Machinist.**

RAILROADING

Future Railway Practice in England—Developments which are likely to take place in British railway practice as a result of the consolidation of all lines into four large systems are reviewed by J. F. Gairns in the **Railway Gazette** (London), and it may be that changes along similar lines will result in this country if the projects for railway consolidation should materialize. The following is a summary of the lines of development predicted: 1. Standardization of locomotives, not so much from the engineering point of view, which has already received attention, but because the new railways are so large that general availability on a wide scale will be essential. 2. Standardization of office methods, forms and returns. 3. Passenger fare standards but with liberal concessions. 4. Freight rates will be necessarily standardized, and modifications will be made on systematic lines. 5. Economic study of all phases of railway operation. 6. General systematizing of train service schedules, though circumstances will always involve certain variations. The need for special fast trains will probably become greater, notwithstanding the fact that uniform train schedules are a desirable feature of economic train working. 7. Additional facilities for through and extension services beyond present frontier points of the individual systems. 8. Alternative routing, using all possibilities afforded by the grouping of hitherto independent lines. 9. Considerable extension of through service and facilities between the companies, even though it will be possible to confine a large proportion of traffic within the limits of the new systems. 10. Signalling will be developed with greater freedom. 11. Electrification will be considerably extended. 12. The high-capacity freight car will gradually find its place, but mainly by the adaption of traffic methods to suit it.

More Money Invested in Moving than Mining Coal—Few persons who make the thoughtless statement that the railroads should buy and maintain locomotives and cars to move the nation's fuel in five or six months realize that the transportation investment now allocated to the movement of coal represents $7.00 per ton of annual production, as against $4.00 invested in mines, mine equipment and coal reserves, and that a further waste of capital put into cars to rot and rust on sidetracks one-half of the year could not prove other than an additional tax to be collected through the transportation rate. Without meditative powers or license to intervene in labor controversies, charged with the one and exclusive duty of sifting out the facts and reporting them to Congress with recommendations for remedial action, the action, the commission, convinced that a strike in the bituminous industry was "in the cards" for April 1, 1923, did a wholesome and courageous thing when it told the operators and mines in joint conference on January 3rd last that "failure to agree would create an intolerable situation," and that "such failure would inevitably result in most serious injury to the general business and common welfare of this country." Realizing that the commission spoke for the whole country, an extension of the 1922 agreement was made, and the nation escaped the intolerable burden of another coal strike.—**Railway Review.**

Japanese Foundries Gain—Production of steel castings, according to figures given out by the iron and steel industry of Japan through the Department of Commerce at Washington, show an increase for 1922 over 1921 of 17%. The output of steel castings for 1921 was 32,167 metric tons. Figures for 1922 are available only for the first six months, but show a total of 19,746 metric tons, —**The Foundry.**

Give the Railroads a Chance—"Evidence is accumulating that the next Congress is to be the scene of another attack on the railroad problem with the avowed purpose on the part of the so-called 'Progressive' bloc of ultimately forcing government ownership," says the **Engineering News-Record.** "The conference called at Chicago by Senator La Follette a few days ago was only the opening gun. Such of the proceedings of that conference as the public was permitted to hear indicated a drive against the Transportation act, with special animus against the fixing of rates by the I. C. C. valuation, which, according to all the speakers, is pointing toward an unreasonable excess over what they are pleased to call investment cost. If the valuation which these men think reasonable were established, the railroads of the country could not survive and the government would have to assume ownership. The past five years have been so unsettled in the railroad business that no useful deduction can be made from what has happened. The railroad managers should be permitted to carry on under some sort of stable conditions for long enough to show what they can do when given a fair chance."

Education in Railroading—That railroading has played and is playing an important part in education will be immediately admitted but not so constantly remembered. The acquiring of knowledge, which is a part of education, has been tremendously accelerated by the advent and advance of railroading. The increased facilities of distribution made possible by railroading have served to bring to everyone's door not only the luxuries, as well as the necessities of physical existence, in constantly increasing and varying forms, but also that which contributes to mental growth. The compilation and publishing of books and current literature of an almost endless variety would be of but little value except to the few were it not for the distributing facilities of transportation—the railroads. Railroading, in the part in which it has played in education, has been and is a vital force in making education possible to the many and making it quickly available so that its reaction serves to bring about further and accelerated advancement. Without the railroads the large educational value in personal contract as between individuals and communities is impossible in so large a country as this.—**Northwestern Railway Magazine.**

Pennsylvania Increases Coal Carrying Capacity.—Coal carrying capacity of the Pennsylvania Railroad system has in the last few months been increased by what is equivalent to the addition of 2,308 new coal cars to the service. Last October orders were placed with the railroad's Altoona works to substitute 70-ton trucks for 50-ton trucks under 10,198 cars then operating in the coal service. To date there have been 6,173 cars turned out of the shops with this work completed, their carrying capacity being increased 31% each by the substitution of the heavier trucks. The additional capacity thus obtained is naturally of greater advantage from an operating standpoint than if it had been secured by placing additional cars in service, as there is no corresponding increase in the number of car units to be handled in trains.—**Railway Review.**

CONDITIONS ABROAD

Shipbuilding in the Mersey and Clyde Districts—"Shipbuilders on the Mersey and the Clyde do not feel very optimistic about the immediate prospects for their industry," says **Iron and Steel of Canada.** "The brief spurt of orders for new ships which developed in the last quarter of 1922 aroused hopes of continued better business in 1923, but the booking of orders already has subsided as far as those two districts are concerned. Inquiries are still being received in considerable numbers, but few develop into actual contracts. The majority of the keels for vessels ordered prior to the first of January have now been laid

down, and for many yards no new keels are in sight for the ways from which launchings are being made. As a result the feeling of cheerfulness that was evident two months ago is being replaced by one of doubt and uncertainty. This applies particularly to the outlook for new construction; repair work is still coming forward in fair volume, with some cases reported of success in geting important repairing contracts for the Clyde against keen Continental competition."

Sound Advice on Foreign Selling—The results of an extensive trip abroad for the purpose of selling goods, arranging agencies, or similar purposes, frequently are nullified through the fact that too little time is allowed for stops at the various places to be visited, states an editorial in **Commerce Reports**, published by the Bureau of Foreign and Domestic Commerce. It sounds like a truism to say that it is impossible to secure full advantage of a commercial trip in foreign countries unless ample time is employed to do the job well. Nevertheless there are numerous instances of expensive journeys abroad that have been largely ineffective because the traveler has not stayed long enough in the larger cities. This is all the more lamentable when a small additional expenditure of time and money might spell the difference between failure and success. There are still a considerable number of business men in the United States who believe it feasible to make a commercial circuit of South America and be back in New York within two months from the date of departure. It seems scarcely necessary to say that such a whirlwind trip is not likely to garner much business.

The Ship Breaking Industry—The ship breaking industry in Germany has been very prosperous up to the present time, according to the **Engineer** (London), the end of the war and the Washington disarmament convention having brought a large number of old warships into Germany to be broken up. The Wilhelmshaven ship-breaking yards had developed considerably, and twenty-five other yards produce some 40,000 tons of scrap iron and steel a month. The prosperity of these yards is now greatly waning, and a certain number of them have been transformed into shipbuilding yards, the breaking up of old merchant ships being less profitable than that of war vessels.

Japan Plans Large Works—Inquiries recently brought out for 4,000 tons of structural steel for building the Shibaura Engineering Works, Yokohama, Japan, indicates the magnitude of this recent undertaking. The steel inquiry is for the construction of three of the proposed sixteen buildings which will compose the new works. The three to be constructed first will be the machine shop, foundry and forge building. These will require more heavy steel each than the remainder of the buildings. A Cleveland (O.) firm has the general contract covering the construction of the sixteen buildings.—**Iron Trade Review.**

MISCELLANEOUS

Enlarged Facilities for Lehigh University—President Richards of Lehigh University has announced a plan for the enlargement of the university facilities which calls for an expenditure of $11,758,000. This money is to be used in the establishment of the Lehigh Institute of Research and in erecting and in endowing several new buildings. President Richards stated that Lehigh needs a new library and auditorium, a metallurgical laboratory, a mechanical and electrical engineering building, a marine engineering laboratory and naval tank, an hydraulic laboratory, a biological greenhouse, an infirmary and an armory. **Engineering News-Record.**

Production in Bethlehem District—More than half of the manufactured and mining products of the United States comes from the gerat eastern industrial district of which Bethlehem, Pa., is the center, according to a survey made by President Charles Russ Richards of Lehigh University. Dr. Richards says that in this district, containing the 14 leading industrial States in the country. Manufactured and mining products worth $35,634,716,063 were produced in the last census year. This amount is 54% of the total production for the United States in that year, which was $65,576,542,739. Of this total Pennsylvania alone produced $8,135,153,976, or 12.4% of the total.—**American Machinist.**

COMPARISON OF METAL PRICES

	Range for 1921.		Range for 1922.		Range for 1923.		Closing June 30,
Pig Iron.	High.	Low.	High.	Low.	High.	Low.	1923.
Bessemer, valley	32.00	20.00	33.50	19.00	31.00	27.50	27.50
Basic, valley	30.00	18.00	30.50	17.75	31.00	25.00	26.00
No. 2 foundry, valley ...	33.00	19.50	35.50	18.75	31.00	26.50	26.50
No. 2X fdy. Philadelphia	33.79	19.84	34.76	21.34	33.16	28.76	29.76
No. 2 foundry, Cleveland	33.56	20.56	35.50	19.56	32.50	27.50	28.27
No. 2X foundry, Buffalo .	31.25	19.00	34.25	19.50	30.25	26.75	27.75
No. 2 foundry, Chicago ..	33.00	18.00	33.00	18.50	32.61	29.11	30.61
No. 2 Southern, Birm. ...	34.00	16.50	28.00	15.00	27.00	23.00	25.00
Scrap Iron and Steel.							
Melting Steel, Pittsburgh	17.00	12.75	22.00	14.00	27.00	20.00	20.00
Heavy steel scrap, Phila.	16.00	10.00	19.00	11.00	26.50	17.75	17.75
Heavy melting steel, Chi.	16.50	10.00	19.00	11.00	24.50	17.75	17.75
No. 1 cast, Pittsburgh ..	22.50	15.00	25.00	16.00	27.50	22.50	22.75
Iron and Steel Products.							
Bessemer rails, mill	45.00	40.00	43.00	40.00	43.00	43.00	43.00
Iron bars, Pittsburgh	3.06	1.85	2.55	1.80	2.82	2.35	2.70
Iron bars, Philadelphia ..	3.85	1.80	2.58	1.70	2.82	2.32	2.72
Steel bars, Pittsburgh ..	2.35	1.50	2.25	1.35	2.40	2.00	2.40
Tank plate, Pittsburgh ..	2.65	1.50	2.50	1.35	2.50	2.00	2.50
Structural shapes, Pitts..	2.45	1.50	2.25	1.35	2.50	2.00	2.50
Grooved steel skelp, Pitts.	2.45	1.50	2.10	1.40	2.50	2.00	2.50
Black sheets, Pittsburgh.	4.35	2.75	3.75	3.00	4.00	3.35	3.85
Galvanized sheets, Pittsb.	5.70	3.75	4.75	4.00	5.50	4.35	5.00
Tin plate, Pittsburgh ...	7.00	4.75	4.75	4.60	6.00	4.75	5.50
Wire nails, Pittsburgh ..	3.25	2.50	2.70	2.40	3.00	2.70	3.00
Steel pipe, Pittsburgh...	57½%	71%	66%	71%	62%	66%	62%
Connellsville Coke at Ovens.							
Propt furnace	5.00	2.75	15.00	3.75	9.00	5.00	5.00
Prompt foundry	7.00	3.75	16.00	3.75	9.50	5.75	5.75
Metals — New York.							
Straits tin	65.00	32.50	39.00	25.50	51.50	38.25	39.12½
Lake Copper	20.50	13.75	14.00	12.00	17.50	14.75	15.00
Electrolytic copper	19.50	12.75	13.75	11.50	17.25	14.50	14.50
Casting copper	19.25	12.75	13.00	11.25	16.87½	14.25	14.25
Sheet copper	29.50	22.50	21.50	19.50	25.50	19.25	23.75
Lead (A. S. & R. Co. price)	9.25	4.75	5.00	4.00	8.25	6.85	6.85
Zinc (spelter)	9.85	6.00	6.10	4.25	8.35	6.10	6.12½
Chinese and Japanese Ant.	11.62½	5.20	6.00	4.45	9.00	6.25	7.00
Aluminum, 98-99%	32.75	22.00	26.00	17.00	26.50	22.50	26.25
Silver	137	59¼	73⅝	52⅝	73¾	62⅜	66
St. Louis.							
Lead *	9.15	4.45	5.05	3.90	8.50	6.50	6.55
Zinc (spelter)	9.50	5.50	5.60	4.12½	8.00	5.75	5.77½
Sheet zinc (f.o.b. smelter)	12.50	11.50	11.50	8.50	10.00	8.90	8.90
London.	£	£	£	£	£	£	£
Standard tin prompts	415½	198	210½	148	232	178⅞	182⅝
Standard copper, prompts	122	70½	75½	65¼	76¼	63⅜	64⅞
Lead	52⅜	21½	26	16½	29⅝	24⅜	24⅜
Zinc (spelter)	63	22½	28¼	23½	39⅛	27⅝	28⅜

* Outside market.

COMPARISON OF SECURITY PRICES

Iron and Industrial Stocks.	Range. 1920. High.	Low.	Range. 1921. High.	Low.	Range. 1922. High.	Low.	Range. 1923. High.	Low.	Closing June 29, 1923.
Allis-Chalmers	53⅞	26½	39¾	28¼	59¾	37¾	51¼	37¾	38
American Can	61¾	21¾	35½	23½	76½	32⅛	106	73½	86½
American Car & Fdy...	147⅜	111	151	115¼	201	141	189	158½	158½
American Loco	109¼	74	110¼	73½	138½	102	146⅜	120⅛	132¾
American Smelt. & Rfg.	72	29¼	47¼	29⅝	67½	43⅝	69½	53	54⅜
Am. Steel Found., new.	50	26	35	18	46⅛	30¾	40⅞	32	32¾
Anaconda Copper	66½	30	50¾	31¾	57	45	53½	38¼	38¼
Baldwin Loco	148½	78	100⅜	62¼	142¾	92¾	144¼	117¾	118½
Bethlehem Steel.....	....	....	....	....	79	51	70	41¾	42⅞
Butte & Superior	29¼	8	22⅛	10	35¼	20⅜	37⅜	17½	18¾
Cerro de Pasco	61⅜	24¼	36½	23	46⅜	32⅞	50½	37⅞	38½
Chile Copper	21¼	7¾	16⅞	9	29¼	15⅛	30⅝	24⅛	25½
Chino Copper	41⅝	16⅜	29½	19½	33⅜	22¼	31⅞	17	18½
Colo. Fuel & Iron	44¼	22	32¾	22	37⅜	24	35⅜	25	26
Crucible Steel	278½	70	107½	49	98⅜	52¾	84½	62½	63¼
General Electric	172	116½	143¾	109½	190	136	190	170½	171¾
General Motors	42	10¾	16¼	9⅜	15¼	8⅛	17½	12¾	13¼
Granby Con.	55½	15	34½	15	35	22	33	17	18½
Great Northern Ore ...	41⅝	24⅞	35⅜	25⅝	45⅝	28⅞	36	25¾	25¾
Gulf States Steel	84⅞	25	50⅞	25	94⅞	44⅞	104⅝	66	68
Inspiration Copper	61⅞	28	42¼	29⅝	45	31	43¾	27¼	28⅜
International Harvester	142½	88	100½	67⅝	115⅞	79⅜	98½	74⅝	78
International Nickel...	26¾	11⅛	17	11½	19¾	11¼	16¼	12⅛	12⅛
Kennecott Copper	33½	14⅝	27⅞	16	39⅝	25½	45	32	32⅛
Midvale Steel	52¾	29½	33½	22	45½	26	33⅜	21½	22
National Enam. & Stg..	89½	43¾	66	26	68½	30¾	73	56⅛	57
National Lead	93¼	63½	87	67¾	129¼	85	136¾	111¼	112⅝
N. Y. Air Brake.....	....	....	....	....	41⅝	24½	41	26⅝	33
Pressed Steel Car	113⅞	72½	96	48	95¼	63	81½	51½	53
Railway Steel Spring ..	106½	73	99½	67	126¼	94	123	103½	103½
Ray Consolidated	22¾	10	15⅞	11	19	12⅛	17¼	10	10¼
Republic Iron & Steel.	124¾	55¼	73½	41	78½	43½	66¼	40¼	41
Sloss-Sheffield	82¼	43	56	32⅛	54½	34½	60	40½	41¼
U. S. Cast Iron Pipe ...	25½	10½	19	11½	39	16⅛	34½	20½	20½
U. S. Smelt., Rfg. & M.	76	29½	39⅜	26	45¾	32¾	43⅜	20	22
U. S. Steel Corporation	109	76¼	86½	70	111½	82	109⅝	90⅛	90¾
U. S. Steel Corp. pfd.....	115¾	104⅛	115	105	123	114¼	123½	116¾	118
Utah Copper	80¾	44⅛	63⅜	41⅛	71½	59	76½	57	57¼
Westinghouse Electric.	55⅛	40	52¼	38⅞	65⅞	49⅛	67⅛	52⅞	53¼

BUSINESS TRENDS

COMMERCIAL FAILURES.

June failure returns fail to reflect any strain resulting from the quieting of certain lines of trade the total for the month is the smallest recorded in any month for two years past--but the totals of liabilities were swelled by three banking suspensions, two in New York and one in Kansas, the causes for which can hardly be traced to any current trade or industrial conditions, but which account for 40% of all June liabilities. The failures for the second quarter of the year and the totals for the half-year are likewise the smallest recorded since the first half of 1921. The second quarter's liabilities are the lightest since the third quarter of 1922, and, with that exception, the lightest since the second quarter of 1920. The half-year's liabilities are smaller than in 1922 or 1921, but larger than in the like six months of the years from 1920 back to 1915.

There were 1,378 failures in June according to Bradstreet's, a decrease of 6% from May and of 17% from June a year ago, while a fraction of 1% below June, 1921, but nearly two and one-half times those of June, 1920. Liabilities for June were $52,003,736, 40% heavier than those of May, and almost exactly equal to those of April, although 31% larger than in June last year, while nearly 5% less than in June two years ago.

The following table gives the failures, assets and liabilities during June from 1914 to 1923, inclusive:

	Number	Assets	Liabilities
1923	9,925	$166,417,650	$288,185,820
1922	12,480	236,124,252	395,351 266
1921	9,057	230.066,476	386,635,414
1920	2,927	58,585,048	101,200,238
1919	2,861	32,916,962	68,326,571
1918	5,398	35,014,615	70,085,706
1917	7,157	43,366,928	85,237,929
1916	8,978	46,108,919	94,878.447
1915	10,714	107,481,279	177,624,631
1914	7,759	95,980,616	175,298,936

BANK CLEARINGS.

The quieting down of some lines of trade in June and preceding months seems to have found fairly prompt reflection in the bank clearing exhibits.

The total clearings at 117 cities for June were $34,053,000,000, as reported to "Bradstreet's," a decrease of 2.1% from May, but an increase of 1.4% over June a year ago. New York City clearings totaled $18,675,000,000, a decrease of 2.7% from May, and of 7.1% from June a year ago, whereas the total at 116 other cities (Lima, Ohio, dropping reporting of clearings last month) was $15,377,000,000, a decrease of only 1.3% from May, and a gain of 14.1% over June last year. In other words, while New York and outside clearings were both below those of May, the former lost $1,436,000,000 from June a year ago, whereas the outside New York total was $1,913,000,000 larger.

Following are the aggregates of clearings monthly at 117 cities, compared with the like periods in four preceding years:

(Six figures omitted.)

	1923	1922	1921	1920
Jan. .	$36,365	$29,450	$32,223	$40,169
Feb. .	30,032	26,023	25,443	32,001
Mar. .	35,351	31,528	29,672	39,703
Apr. .	33,012	30,996	27,688	38.012
May .	34,791	32,346	27,367	35,527
June .	34,053	33,558	28,916	36,800
July .	.....	31,235	26,834	35,819
Aug. .	.....	29,879	26,096	32,799
Sept. .	.....	30,712	27,059	34,385
Oct. ..	.....	34,890	28,974	37,099
Nov. .	.....	31,329	29,200	34,407
Dec. .	.....	33,775	31,402	36,029
Total	.....	375,721	340,874	432,750

COMMODITY PRICES GO LOWER.

Bradstreet's Commodity Price Index as of July 1st was $13.0895, which marked a decrease of 2.2% from June 1st and of 6% from March 1st this year, although 8.1% above July 1st a year ago, and 23.2% above June 1, 1921, when commodity prices were scraping on the bottom. Compared with February 1, 1920, the July 1st number is 37.2% lower, but compared with August 1, 1914, the present level is 50.2% higher. Of thirteen groups of commodities included, twelve moved lower in June, the most notable weakness being in provisions (meat carcasses and hog products), metals (pig iron and non-ferrous metals like copper, lead and tin), miscellaneous products, hides and leather, textiles, live stock and oils. Compared with June 1st, only eight products were higher, while forty-seven were lower and fifty-one were unchanged. Compared with a year ago sixty-four products are up, thirty-four are lower and eight are unchanged.

A monthly range of index numbers of the past four years is given below:

	1923.	1922.	1921.	1920.
Jan. ..	13.7011	11.3725	12.6631	20.3638
Feb. ..	13.7236	11.4190	12.3689	*20.8690
Mar. .	13.9332	11.6001	11.8650	20.7950
April .	13.9304	11.5317	11.3749	20.7124
May ..	13.6665	11.7044	10.8208	20.7341
June .	13.0895	11.9039	10.6169	19.8752
July .	.....	12.1069	10.7284	19.3528
Aug. .	.....	12.0688	11.0576	18.8273
Sept. .	.....	12.0793	11.0868	17.9746
Oct. ..	.....	12.5039	11.1879	16.9094
Nov. .	.....	13.3482	11.3514	15.6750
Dec. ..	.....	13.7835	11.3127	13.6263

* High record.

BUSINESS TRENDS

CAR LOADINGS.

For the third consecutive week and the fourth time this year railroad cars loaded with revenue freight exceeded 1,000,000 in the week ended June 23rd. The total for that period was 1,002,740, a decrease of 4,513, compared with the previous week.

The total for the week of June 23rd was an increase of 136,419 cars over the corresponding week last year, and an increase of 227,293 cars over the corresponding week in 1921. It also exceeded by a wide margin the corresponding weeks in 1918, 1919 and 1920.

The following is a comparison of the cars loaded with revenue freight since March 3rd with totals for the two preceding years.

Week ended	1923	1922	1921
June 23 ..	1,002,740	866,321	775,447
June 16 ..	1,007,253	848,657	775,328
June 9 ...	1,013,249	836,208	787,283
June 2 ...	932,041	739,559	693,903
May 26 ..	1,014,029	806,877	795,335
May 19 ..	991,797	780,953	770,991
May 12 ..	974,531	767,094	751,186
May 5 ..	961,029	747,200	721,722
April 28 ..	963,694	751,111	721,084
April 21 ..	957,743	706,137	704,632
April 14 ..	946,759	700,155	702,116
April 7 ..	895,767	706,013	694,881
Mar. 31 ..	938,725	851,808	663,171
Mar. 24 ..	917,036	837,241	686,567
Mar. 17 ..	904,286	815,082	691,396
Mar. 10 ..	905,219	829,128	700,440
Mar. 3 ..	917,896	793,115	711,367

THE RAILROADS IN MAY.

Returns from forty-two Class 1 roads and systems show net operating income for May of $58,557,711, compared with $40,159,442 in May, 1922. Last year May gross of these roads represented 63.4% of the total, and, if the same ratio holds this year, returns thus far indicate net operating income for May of $92,360,000 for all Class 1 roads. Weighted for seasonal fluctuations of traffic, this would be at the annual rate of $1,247,000,000, or 6.50% on an investment of $19,175,000,000, compared with weighted annual return in April of 6.48%, says the Wall Street Journal.

MANY NEW ENTERPRISES.

During June 1,013 new companies were organized under the laws of the different States with an authorized capital of $100,000 or over, representing the sum of $1,403,336,220. This is the heaviest monthly total since May, 1920, when 979 concerns were incorporated with a combined authorized capital of $1,417,613,900. In June a year ago 514 new enterprises took out charters involving $297,557,000. These figures are highly significant, as they emphasize the fact that a hopeful feeling prevails in many quarters regarding the general business outlook.

Since January 1st 5,249 new companies have been formed with an authorized capital of $4,338,045,120. For the first six months of 1922 5,097 companies were incorporated, representing a grand total of $4,195,047,200. During the corresponding period in 1921 5,389 concerns were chartered with an authorized capital of $5,116,381,800.

The following are the comparative figures as compiled by **The Journal of Commerce** of companies incorporated in the States with authorized capital of $100,000 or over.

	1923	1922
January	$909,693,800	$ 843,652,900
February ...	700,708,300	591,404,300
March	500,819,000	731,866,000
April	1,006,258,300	792,372,000
May	817,229,500	938,195,000
June	1,403,336,220	297,557,000
July	.....	634,259,200
August	.....	646,605,000
September ..	.....	650,044,000
October	.....	651,577,390
November ..	.....	808,719,600
December ...	.....	813,901,000
Total	.....	8,400,153,390

SOME SIDE LIGHTS ON FOREIGN TRADE.

With the end of the fiscal year special interest attaches to the showing which our foreign trade has made in the year just closed. Final returns of the year's trade will, of course, not be had for some weeks to come, but aggregates of exports and imports for eleven months are available, and some details of our export trade in foods have been received which furnish us with an approximation of our outgoing trade, while the latest returns of imports throw some light on the epoch-making change which has occurred in this branch since February 1st. In February, it might be noted, the balance of exports over imports reached the disappearing point, and since then imports have exceeded exports, a condition not before recorded since August, 1914, nearly nine years ago.

The comparative figures of exports and imports from January down to and including May. 1923, are given below:

(000's omitted)

	Exports	Imports	Excess of Exports
January	335,417	329,902	5,514
February	306,957	303,446	3,511
March	341,351	398,178	*56,827
April	325,449	364,230	*38,780
May	319,000	370,000	*51,000

* Excess of imports.

THE EVILS OF RATE CUTTING

Clifford Segal takes up this important subject in a recent issue of **Industrial Management,** and says at the outset that it is difficult to appreciate an article of this kind unless one really understands the evils of improper rate setting and rate cutting.

In this article the writer aims to describe the existing conditions in a machine shop of purely mass production of a normal corporation and the evils introduced by their improper methods.

By some office clerks (nobody seems to know by whom) all rates on all jobs are set or reset. Rates are not set by time study or other scientific methods, but by guess work. Consequently, rates are wrong and, strange to say, are often too high.

The shop operates on what has been termed in these columns as the 100% premium payment plan. The men are guaranteed a day rate and the incentive lies in the bonus which the men get as a time rate per piece after making the number of pieces equivalent to the day rate.

The same job going through at various times often has different rates, due to these office rate setters' cutting. The reasoning used in cutting is this: the report of the man's bonus shows that he has made too much on the job. Since the company only wants a man to make a limited bonus, the rate is cut, so that working at the same speed as before, the man will make the company's limited bonus. The writer has seen the management "cussed up an down" for their trickery when an old job came through with a lowered rate.

With the new rate, the worker follows one of two courses of action: either the rate is too low to make any bonus, and the man does not even attempt to make his day rate; or the rate is still too high, but this time he watches closely about "killing" it. In other words, he soldiers on the job so that at the end of the day he has made enough pieces to allow him sufficient bonus so the rate won't be cut again. From past experience, he now knows enough not to "kill" the rate on a new job if the rate is a good one. So that, at present, the only time a good rate is "killed" is when a man is quitting. He sets out to make as much as possible while working his week's notice. The next time the job comes through the rate is much lower.

It can be seen, then, that either way production is stifled. The men in each department get together and have an understanding on how much is to be done so the rate won't be cut. When a new man gets an old job, he is told by fellow workers how much he must do so that the job rate won't be cut, but the management never undertakes to tell him how much he must do to keep his job, because they actually don't know. It seems that management here is more interested in seeing that the men are working rather than that the work is being done. Anybody who has ever worked in a shop knows that workers can keep busy more ways than one without producing anything.

The following incident illustrates what often happens when rate cutting is the practice.

One of the men was given a job with a rate set much too high. Consequently, with all the time-killing he could possibly do, he put his day rate in by noon. In the early part of the afternoon, he had his allowable bonus made, and so started to kill time quite openly, since he did not dare do more lest the job rate be cut. The foreman, who had been noticing the soldiering on the job, came up to prod him along; whereupon the man got sore and told the foreman that he had his day rate and bonus made. This started an argument. To end the heated discussion, the man hit the foreman in the eye. Of course, the worker was fired. Result: The men secretly siding with the discharged worker and a further break between men and management.

Can such conditions be remedied? One of two courses is open. First abolish the bonus system and make a man do a required amount of work to keep his job. But the question arises, "How can a standard for a day's work be fixed unless a proper rate per piece is determined?" This involves the second solution: the proper use of scientific methods of fair rate fixing and guarantee of management against rate cutting.

IRON AND STEEL MARKET

In June the iron and steel situation continued to develop along the lines followed in May. New buying continued light, and may have been a little greater or a little less than in May. Pressure upon mills for deliveries against old orders decreased farther.

Production of both pig iron and steel ingots decreased from May to June, but only by 2% in pig iron and by not a great deal more in steel. April had been the record high month in steel production while May was the high month in pig iron. Incidentally, it may be mentioned that by this and other circumstances it is seen that there is an ample supply if pig iron.

Price trends were exactly the same in June as in May. Coke and scrap continued their declines, begun late in March. Pig iron continued its decline, begun about May 1st, though during April the market had been weakening. Finished steel products continued unchanged. In the various products the last advances had been in March or in April, so that there has been a stationary market for more than two months.

Some price shading in finished steel products was reported at the end of June, but an oblique view of the situation is obtained by regarding such reports. It is human nature to emphasize such odd cases in a time like this. There is always some material sold at less than the regular published prices. Sometimes it is a case of a particularly large and attractive order, frequently it is a case of the material being a little unusual in specifications or otherwise. It is probably strictly true to state that in a strong, active and advancing steel market much more tonnage is sold at concessions than was the case in the easy market that obtained at the end of June.

These concessions are exceptional. If they were not, they would make the market. Whenever the shading comes to amount to any considerable propor-

COMPOSITE PIG IRON.

Computation for July 2, 1923.

One ton Bessemer, valley	$27.50
Two tons basic, valley (26.00)	52.00
One ton No. 2 fdy., valley	26.50
One ton No. 2X fdy., Philadelphia	29.76
One ton No. 2X fdy., Buffalo	27.75
One ton No. 2 fdy., Cleveland	28.27
One ton No. 2 fdy., Chicago	30.61
Two tons No. 2 Southern foundry, Cincinnati (29.05)	58.10
Total, ten tons	280.49
One ton	**28.049**

Averaged from daily quotations.

	1923.	1922.	1921.	1920.	1919.	1918.
Jan.	27.31	19.71	32.62	39.84	32.39	34.19
Feb.	27.98	19.31	29.95	42.72	32.39	34.19
Mar.	30.36	19.26	27.35	43.05	30.47	34.14
Apr.	31.44	20.77	25.80	43.62	28.05	33.88
May	30.84	23.91	24.67	44.43	27.74	33.88
June	29.11	24.29	23.08	44.80	27.15	33.91
July	....	24.54	21.57	45.60	27.66	34.04
Aug.	....	27.74	20.29	47.41	27.99	34.04
Sept.	....	32.48	20.99	48.98	28.26	34.31
Oct.	....	31.82	21.15	47.07	28.65	35.36
Nov.	....	29.47	20.92	41.80	31.48	35.39
Dec.	....	26.73	20.42	36.31	36.73	35.23
Year	....	25.00	24.05	43.80	29.91	34.38

Annual Averages.

1917	39.99	1914	13.52
1916	20.31	1913	15.42
1915	14.15	1912	14.82

COMPOSITE STEEL.

Computation for July 2, 1923.

Pounds	Group	Av. Price	Extension
2½	Bars	2.40	6.000
1½	Plates	2.50	3.750
1½	Shapes	2.50	3.750
1½	Pipe (1-3)	3.80	5.700
1½	Wire nails	3.00	4.500
1	Sheets (28 ga.)	2.85	3.850
½	Tin plate	5.50	2.750
Total, ten pounds			30.300
One pound			**3.03**

Averaged from daily quotations.

	1923.	1922.	1921.	1920.	1919.	1918.
Jan.	2.59	2.16	3.25	3.35	3.58	3.80
Feb.	2.72	2.14	3.10	3.58	3.58	3.80
Mar.	2.83	2.09	2.94	3.78	3.47	3.80
Apr.	2.99	2.16	2.93	3.77	3.25	3.80
May	3.03	2 18	2.93	3.71	3.25	3.80
June	3.03	2.22	2.83	3.67	3.25	3.80
July	....	2.23	2.63	3.70	3.25	3.80
Aug.	....	2.36	2.48	3.80	3.25	3.80
Sept.	....	2.51	2.37	3.80	3.22	3.80
Oct.	....	2.57	2.31	3.67	3.23	3.80
Nov.	....	2.57	2.28	3.50	3.25	3.80
Dec.	....	2.57	2.23	3.28	3.25	3.67
Av.	....	2.31	2.69	3.63	3.32	3.79

Annual Averages.

1917	4.46	1915	1.63	1913	1.72
1916	2.80	1914	1.52	1912	1.62

tion of the total turnover in the market, say 15%, then within a week or so the whole market, as a quotable market, is going to be down to the level involved. That has not occurred yet. Very probably it will occur in the not distant future. A rough guess would be that it is more likely than not to occur by September 1st.

PIG IRON

During June foundry pig iron declined $1.50 at Philadelphia and Buffalo and $3.00 at Chicago.. Alabama iron, on light offerings since the furnaces were already well sold up for third quarter, declined $2.00 to $25.00, Birmingham. The Mahoning and Shenango valley market declined $1.50 on Bessemer, $2.50 on basic and $1.50 on foundry. The full extent of the decline in basic, to $25.00, furnace, did not leak out until the early days of July.

It appears that while pig iron consumers took their deliveries rather well during the second quarter they did not consume all the iron, while a few furnaces accumulated iron, not having tried hard to sell until it was too late. Pig iron buyers are very conservative and it is difficult to make any sales at all.

PIG IRON PRODUCTION.

Output of pig iron in June amounted to 3,668,413 tons. This is equivalent to a daily output of 122,280 tons for the

PIG IRON PRICES.

(Averaged from daily quotations; at Philadelphia, Buffalo, Cleveland and Chicago, prices are delivered.)

	Bessemer, Valley	Basic Valley	No. 2 fdy. Valley	Basic. Phila.	No. 2X Phila.	No. 2X foundry Buffalo.	No. 2 fdy. Cleveland.	No. 2 fdy. Chicago.	No. 2 fdy. Birmingham.	Ferro-manganese.*	Comp. Pig Iron.
Feb. 1921	29.63	27.71	28.29	29.28	30.73	30.17	30.15	30.87	27.50	90.00	29.95
Mar. ...	26.70	24.41	25.89	26.54	28.03	29.01	27.70	27.07	25.52	90.00	27.35
April ..	25.00	23.00	24.81	25.47	26.38	27.17	26.77	25.32	23.77	90.00	25.80
May ...	24.32	22.15	23.60	23.70	24.96	25.40	25.56	23.70	21.80	85.00	24.47
June ...	22.88	21.20	22.42	23.54	24.21	22.45	24.17	22.08	20.48	75.00	23.08
July	21.34	19.52	20.40	22.40	23.00	20.68	21.66	19.98	20.18	70.00	21.57
Aug. ...	20.00	18.22	19.59	19.70	20.42	19.48	20.56	19.64	18.70	68.50	20.29
Sept. ..	20.00	19.00	20.86	19.14	20.84	20.08	20.56	22.18	19.06	66.00	20.99
Oct. ...	20.00	19.24	21.00	20.50	21.40	20.50	20.56	22.35	19.00	60.00	21.15
Nov. ...	20.00	19.00	20.78	20.50	21.93	19.82	20.56	21.79	18.56	60.00	20.92
Dec. ...	20.00	19.00	20.00	20.45	21.88	19.38	20.56	20.53	17.31	59.00	20.42
Jan. 1922	19.62	18.19	19.38	20.25	21.34	19.75	19.92	19.84	15.96	58.00	19.71
Feb. ...	19.40	18.00	18.92	19.84	21.34	19.06	19.56	19.18	15.33	65.75	19.31
Mar. ...	19.02	17.89	18.87	19.84	20.73	18.56	19.56	20.48	15.31	62.50†	19.26
April ..	20.88	19.98	20.74	20.75	22.90	20.89	20.76	21.06	15.74	68.00†	20.77
May ...	25.08	24.62	24.00	23.37	25.51	23.44	24.56	23.05	17.63	70.00†	23.91
June ..	25.00	25.00	24.00	25.00	26.62	22.96	24.56	23.83	18.44	68.50†	24.29
July ...	25.00	24.32	24.20	25.54	28.00	25.05	24.56	24.73	18.56	69.00†	24.54
Aug. ...	27.74	26.17	29.04	29.00	31.69	30.42	29.16	28.17	20.37	70.00†	27.74
Sept. ..	33.76	30.08	35.02	30.90	34.76	34.13	35.50	32.53	25.40	77.00†	32.48
Oct. ...	33.23	30.23	31.63	29.50	32.69	31.60	34.27	32.15	27.04	100.00†	31.82
Nov. ...	31.70	28.28	28.78	28.14	30.78	28.41	31.34	30.65	24.12	100.00‡	29.46
Dec. ...	27.78	24.96	25.92	27.50	28.53	26.19	27.38	28.09	22.70	100.00‡	26.73
Jan. 1923	27.50	25.00	27.00	27.90	28.72	27.44	27.83	29.09	23.23	103.00‡	27.31
Feb. ...	27.75	25.67	27.21	28.25	29.79	28.52	28.42	30.13	24.29	106.00‡	27.98
Mar. ...	29.94	29.44	30.00	29.17	31.86	29.40	31.31	31.46	26.33	117.00‡	30.26
April ..	31.00	31.00	31.00	30.50	33.01	30.17	32.50	32.61	27.00	116.50‡	31.44
May ...	30.23	29.33	30.69	30.85	32.64	29.29	32.13	32.61	27.00	123.00‡	30.84
June ..	28.73	26.85	28.04	28.20	30.47	28.87	29.85	32.11	25.63	125.00‡	29.11
Yearly averages.											
1913 ...	16.26	14.77	14.87	16.23	16.56	14.87	15.37	16.39	11.73	57.87	15.42
1914 ...	13.99	12.89	13.02	14.02	14.59	12.84	13.76	14.15	10.25	55.80	13.52
1915 ...	14.90	13.78	13.81	14.88	15.25	13.98	14.31	14.46	10.59	92.21	14.15
1916 ...	23.05	19.87	20.16	20.96	21.20	20.63	20.40	20.67	15.84	164.12	20.31
1917 ...	42.67	39.10	39.89	39.37	40.80	40.41	40.61	41.06	35.11	309.17	39.99
1918 ...	35.46	32.50	33.27	34.10	35.56	33.97	33.62	33.77	33.20	245.83	34.38
1919 ...	29.62	27.49	28.63	30.02	32.75	30.53	29.14	29.37	28.34	132.16	29.91
1920 ...	42.85	42.05	43.25	43.26	46.74	45.23	43.66	43.25	40.43	172.33	43.80
1921 ...	23.49	21.87	23.30	23.56	24.74	23.78	24.34	24.05	21.92	76.54	24.05
1922 ...	25.68	23.98	25.04	24.88	27.07	25.04	25.93	25.31	19.72	75.33	25.00

* Delivered. † Seaboard. ‡ F. o. b. furnace.

thirty days of the month, based upon furnace returns made to the Iron Age. These figures refer to coke and anthracite iron alone. In May the total output of coke and anthracite iron was 3,867,694 tons, equivalent to a daily rate of 124,764 tons for a month of 31 days. Thus there was a decrease in June of 2,484 tons a day or a total of 74,520 tons for the month as compared with May.

The June reduction was due entirely to the blowing out and banking of furnaces by steel companies, as merchant furnaces increased their production in June. Steel companies had a total output of 2,729,280 tons in June, equivalent to a daily rate of 90,976 tons whereas in May the steel companies produced 2,976,892 tons equivalent to a daily rate of 96,029 tons. Thus there was a loss for the steel companies of 5,053 tons a day.

On the other hand merchant furnaces in June had a total output of 939,120 tons equivalent to a daily rate of 31,304 tons against a total production in May of 890,785 tons, equivalent to a daily rate of 28,735 tons. This was a gain of 2,569 tons a day.

The June production of all companies was at the rate of 44,632,200 tons of coke and anthracite iron a year, whereas in May the annual rate was close to 45,550,000 tons. Including charcoal iron the June production was at the rate of 44,850,000 tons a year against a yearly rate of 45,770,000 tons in May.

On July 1st 322 blast furnaces were active, eight having blown in and seven having blown out in June. The daily capacity of the furnaces in blast on July 1st was therefore slightly larger than on June 1st when the total daily capacity was 125,100 tons a day.

The following table shows the estimated annual rates of production of coke and anthracite iron in each month during the last three years.

Estimated annual rates.

	1923	1922	1921
Jan. ..	38,000,000	19,300,000	28,750,000
Feb. ..	39,000,000	21,300,000	25,550,000
Mar. ..	41,300,000	24,000,000	19,000,000
April .	43,400,000	25,250,000	14,600,000
May ..	45,550,000	27,250,000	14,450,000
June ..	44,430,000	28,900,000	13,000,000
July		28,500,000	10,200,000
Aug.		21,550,000	11,250,000
Sept.		24,950,000	13,000,000
Oct.		31,350,000	14,600,000
Nov.		34,900,000	17,200,000
Dec.		36,350,000	19,400,000

Yearly Totals

1922 ..	27,219,904		
1921 ..	16,688,126	1916 ..	39,434,797
1920 ..	36,925,987	1915 ..	29,916,213
1919 ..	31,015,364	1914 ..	23,332,244
1918 ..	39,054,644	1913 ..	30,966,152
1917 ..	38,621,216	1912 ..	29,726,937

UNFINISHED STEEL AND IRON BARS.

Averaged from daily quotations.

1921—	Billets. Pitts.	Sheet Bars. Pitts.	Rods. Pitts.	—Iron bars, deliv.— Phila.	Pitts.	Ch'go.
Jan.	45.00	47.00	57.00	2.85	3.06	2.68
Feb.	42.00	42.00	57.00	2.70	2.70	2.62
Mar.	39.00	39.00	47.00	2.56	2.60	2.60
April	37.00	38.50	47.50	2.35	2.45	2.45
May	37.00	39.00	48.00	2.35	2.35	2.38
June	35.00	36.00	48.00	2.20	2.25	2.25
July	32.00	33.00	43.00	2.07	2.20	1.94
Aug.	30.25	30.50	42.00	2.00	2.08	1.75
Sept.	30.00	30.00	40.50	1.97	2.00	1.75
Oct.	30.00	30.00	40.00	1.92	2.00	1.75
Nov.	29.00	30.00	40.00	1.90	1.97	1.70
Dec.	29.00	29.00	38.00	1.85	1.95	1.70
1922—						
Jan.	29.00	29.00	37.00	1.80	1.82	1.60
Feb.	28.50	29.00	36.00	1.75	1.78	1.60
Mar.	28.00	29.00	36.00	1.70	1.70	1.54
April	30.00	31.75	38.00	1.81	1.75	1.57
May	34.00	35.00	38.00	1.86	1.83	1.65
June	35.00	35.00	38.00	1.96	1.95	1.73
July	35.00	35.00	40.00	2.12	2.13	1.85
Aug.	37.00	37.00	43.00	2.16	2.15	1.95
Sept.	39.00	40.00	45.00	2.48	2.25	2.25
Oct.	39.50	39.50	45.00	2.43	2.40	2.50
Nov.	37.75	37.75	45.00	2.37	2.40	2.50
Dec.	36.50	36.50	45.00	2.32	2.35	2.50
1923—						
Jan.	37.50	37.50	48.50	2.36	2.37	2.45
Feb.	39.40	39.40	50.00	2.51	2.54	2.35
Mar.	44.00	44.00	50.00	2.70	2.70	2.50
April	46.30	45.60	50.00	2.82	2.80	2.60
May	45.00	45.00	50.00	2.82	2.80	2.60
June	43.50	43.50	50.50	2.80	2.75	2.60
Yearly averages						
1913.	25.56	26.35	28.39	1.51	1.59	1.45
1914.	20.08	20.84	25.50	1.20	1.27	1.07
1915.	23.14	23.46	28.28	1.37	1.32	1.24
1916.	45.02	45.10	57.58	2.57	2.59	2.31
1917.	71.15	75.87	80.23	4.06	4.09	3.78
1918.	47.30	50.80	57.00	3.71	3.50	3.50
1919.	40.52	43.77	53.11	2.94	2.80	2.69
1920.	57.79	65.21	70.00	4.35	4.13	3.65
1921.	34.60	35.33	45.67	2.23	2.30	2.13
1922.	34.10	34.54	40.50	2.06	2.04	1.94

WAGE SCALE AVERAGES

	Bar Iron.	Sheets.	Tin Plate.
Jan.-Feb. ..	2.25	3.30	4.80
Mar.-April .	2.35	3.40	4.80
May-June ..	2.50	....	....

STEEL PRODUCTION

According to the statement made by the American Iron and Steel Institute total production of ingots by all steel companies in June based upon returns from companies producing 95.35% of total make, was 3,748,890 tons during the 26 active days of the month, against a May production of 4,195,800 tons, based upon 27 active days. The daily output in June was 144,188 tons against a daily output in May of 155,400 tons. In April the total production was 3,944,412 tons during the 25 active days, the daily rate being 157,776 tons. Thus the highest monthly production of record was in May but the highest daily production was in April. The June production was at the rate of 44,842,468 tons a year as against an annual production of 48,329,400 tons in May and 49,968,336 tons in April.

In June the companies which reported to the Institute had an output of 2,821,239 tons of open hearth, 737,845 tons of Bessemer, and 15,483 tons of miscellaneous or a total of 3,574,567 tons. In the first six months of the year all companies are indicated to have produced 23,213,243 tons, of which 22,133,827 tons were

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The following table shows the monthly production reported by the 30 companies which make returns to the American Iron and Steel Institute, as compared with the corresponding months last year, also the estimated annual rate of production by all steel companies for each month during the years 1922 and 1921:

	Months production as reported.		Estimate of total annual rate. (000 omitted)	
	1922.	1921.	1922.	1921.
Jan.	1,593,482	2,203,180	22,750	29,100
Feb.	1,745,022	1,749,477	26,850	25,400
Mar.	2,370,751	1,570,978	32,550	21,000
April	2,444,513	1,213,958	35,450	16,800
May	2,711,141	1,265,850	36,400	18,000
June	2,634,477	1,003,406	36,600	14,000
July	2,487,104	803,376	36,000	11,100
Aug.	2,214,582	1,138,071	30,000	15,800
Sept.	2,373,779	1,174,740	33,000	16,850
Oct.	2,872,415	1,616,810	40,000	23,000
Nov.	2,889,297	1,660,001	40,000	23,300
Dec.	2,779,890	1,427,093	39,500	19,750

1923.		1923.	
Jan.	3,251,694	Jan.	43,500
Feb.	2,919,017	Feb.	44,000
Mar.	3,402,007	Mar.	45,500
April	3,321,275	April	49,100
May	3,537,753	May	48,450

STEEL MAKING PIG IRON AVERAGES

Bessemer and basic pig iron averages compiled by Messrs. W. P. Snyder & Company from sales in the valley market of 1,000 tons and over.

	Bessemer.			Basic.		
	1923.	1922.	1921.	1923.	1922.	1921.
Jan.	27.50	19.50	32.00	25.58	18.19	30.00
Feb.	28.02	19.50	27.00	26.38	17.75	25.00
Mar.	30.26	19.39	26.20	30.02	18.00	24.50
April	31.00	20.54	25.00	31.00	19.30	22.50
May	30.10	24.40	24.25	28.06	24.91	21.87
June	28.50	25.00	23.00	26.57	25.00	20.70
July	.....	25.00	20.88	.....	24.56	18.80
Aug.	.....	28.67	20.00	.....	25.41	18.33
Sept.	.....	33.50	20.00	.....	32.93	19.25
Oct.	.....	33.50	20.00	.....	30.00	19.00
Nov.	.....	31.75	20.00	.....	27.60	19.00
Dec.	.....	28.10	20.00	.....	24.57	18.69
Year	.....	25.75	23.19	.....	24.02	21.47

All prices are f.o.b. valley furnace; freight, August 26, 1920, $1.96; August 1, 1922, $1.77.

STEEL CORPORATION BOOKINGS

Changes in unfilled tonnage with shipments and bookings estimated in percentage of capacity.

1921.	Shipments. %	Bookings. %	Difference. %	Difference. Tons
Nov.	52	49	— 3	— 362,287
Dec.	48	49	+ 1	+ 17,872
1922.				
Jan.	47	45	— 2	— 26,736
Feb.	57	49	— 8	— 100,609
Mar.	65	90	+25	+ 353,079
April ...	70	115	+45	+ 602,769
May	75	86	+11	+ 157,311
June	75	103	+28	+ 381,303
July	75	86	+11	+ 140,630
Aug.	67	79	+12	+ 173,944
Sept. ...	67	121	+54	+ 741,502
Oct.	76	91	+15	+ 210,680
Nov.	81	76	— 5	— 62,045
Dec.	80	73	— 7	— 94,539
Jan., 1923	86	97	+11	+ 165,073
Feb.	88	117	+29	+ 373,213
Mar.	89	97	+ 8	+ 119,343
April ...	93	84	— 9	— 114,823
May	93	72	—21	— 307,158

Unfilled Orders.

At end of the quarter, last three figures omitted.

	First.	Second.	Third.	Fourth.
1910	5,402	4,257	3,158	2,674
1911	3,447	3,361	3,611	5,084
1912	5,304	5,807	6,551	7,932
1913	7,468	5,807	5,003	4,282
1914	4,653	4,032	3,787	3,836
1915	4,255	4,678	5,317	7,806
1916	9,331	9,640	9,522	11,547
1917	11,711	11,383	9,833	9,381
1918	9,056	8,918	8,297	7,379
1919	5,430	4,892	6,284	8,265
1920	9,892	10,978	10,374	8,148
1921	6,284	5,117	4,560	4,268
1922	4,494	5,635	6,691	6,746
1923	7,403	....	....	....

produced by the reporting companies, made up of 17,499,141 tons of open hearth, 4,555,446 tons of Bessemer and 79,240 tons miscellaneous. The daily output in the first half was at an average rate of 148,803 tons a day.

The basis of the monthly report of steel ingot output made by the American Iron and Steel Institute has been changed by including reports from a larger number of companies so that the figures represent over 95% of the total production. The reports for previous months of 1923 have been revised and put upon this new basis. The Institute also has added to the report the estimated total production of all companies calculated on the percential basis stated in the tables given on page 361 together with the number of working days in each month and the approximate daily production of all companies. Although the actual reported production in 1922 is on the old basis of 84.15% of the total production, the calculated monthly production of all companies and the approximate daily production of all companies are comparable with the similar figures presented for the first six months of 1923 which are based on actual returns of companies which in 1922 made 95.35% of the total production.

STEEL TONNAGE

As to steel itself, the ups and downs in the past have been seen to consist largely in the country building up its stocks of steel and then liquidating them. A great deal of steel has now been produced and distributed. It was at the

FINISHED STEEL PRICES.

(Averaged from daily quotations, f. o. b. Pittsburgh.)

							Grooved	—— Sheets ——				Comp.
	Shapes.	Plates.	Bars.	Pipe	Wire.	Wire Nails.	Steel Skelp.	Black.	Galv.	Blue Annld.	Tin plate.	Fin. Steel.
Feb. 1921	2.30	2.35	2.13	57½	3.00	3.19	2.30	4.22	5.45	3.30	7.00	3.10
Mar.	2.10	2.10	2.00	57½	3.00	3.01	2.20	3.95	4.98	3.00	7.00	2.94
April ...	2.16	2.16	2.06	61	3.00	3.15	2.15	3.90	4.85	3.05	6.54	2.93
May	2.20	2.20	2.10	62½	3.00	3.25	2.20	4.00	5.00	3.10	6.25	2.93
June	2.15	2.06	2.08	62½	2.75	3.00	2.10	3.86	4.80	2.95	5.90	2.83
July	1.96	1.93	1.88	64	2.56	2.81	1.90	3.46	4.40	2.55	5.75	2.63
Aug.	1.84	1.84	1.75	64½	2.50	2.75	1.75	2.94	3.94	2.30	5.25	2.48
Sept.	1.68	1.67	1.67	66⅝	2.57	2.85	1.67	2.83	3.83	2.33	5.00	2.37
Oct.	1.60	1.59	1.60	68½	2.60	2.90	1.65	3.00	4.00	2.25	4.75	2.31
Nov.	1.60	1.51	1.56	68½	2.60	2.90	1.60	2.92	3.92	2.25	4.75	2.28
Dec.	1.57	1.50	1.53	69¾	2.44	2.70	1.52	3.00	4.00	2.25	4.72	2.23
Jan. 1922	1.50	1.50	1.50	71	2.25	2.50	1.50	3.00	4.00	2.25	4.75	2.16
Feb.	1.46	1.46	1.46	71	2.22	2.47	1.46	3.00	4.00	2.25	4.75	2.14
Mar.	1.41	1.39	1.41	71	2.25	2.40	1.40	3.00	4.00	2.25	4.61	2.09
April	1.50	1.49	1.50	71	2.25	2.40	1.50	3.12	4.12	2.37	4.66	2.16
May	1.52	1.52	1.55	71	2.25	2.40	1.55	3.15	4.15	2.40	4.72	2.18
June	1.60	1.60	1.60	71	2.25	2.40	1.60	3.15	4.15	2.40	4.75	2.22
July	1.62	1.62	1.62	71	2.25	2.40	1.62	3.15	4.15	2.40	4.75	2.23
Aug.	1.82	1.82	1.80	70⅛	2.26	2.41	1.80	3.27	4.27	2.46	4.75	2.36
Sept.	2.00	2.00	1.92	68	2.37	2.62	2.10	3.35	4.35	2.60	4.75	2.51
Oct.	2.00	2.08	2.00	66⅞	2.45	2.70	2.05	3.35	4.35	2.70	4.75	2.57
Nov.	2.00	2.00	2.00	66	2.45	2.70	2.00	3.35	4.35	2.55	4.75	2.57
Dec.	2.00	2.00	2.00	66	2.45	2.70	2.00	3.35	4.35	2.50	4.75	2.57
Jan. 1923	2.04	2.04	2.00	66	2.49	2.70	2.00	3.35	4.35	2.50	4.75	2.59
Feb.	2.16	2.18	2.16	64¼	2.61	2.80	2.16	3.40	4.49	2.55	4.78	2.72
Mar.	2.29	2.29	2.25	64	2.70	2.82	2.30	3.63	5.00	2.95	5.09	2.83
April	2.46	2.46	2.36	63¼	2.70	2.94	2.40	3.97	5.20	3.20	5.50	2.99
May	2.50	2.50	2.40	62⅝	2.75	3.00	2.42	3.85	5.10	3.15	5.50	3.03
June	2.50	2.50	2.40	62	2.75	3.00	2.40	3.85	5.00	3.10	5.50	3.03
Yearly averages:												
1913	1.42	1.41	1.38	79¾	1.50	1.70	1.39	2.20	3.28	1.68	3.56	1.72
1914	1.16	1.14	1.15	80	1.37	1.57	1.17	1.89	2.87	1.38	3.35	1.52
1915	1.30	1.29	1.31	79¼	1.48	1.66	1.27	1.93	3.85	1.49	3.19	1.63
1916	2.50	2.82	2.48	70⅞	2.45	2.53	2.34	3.06	4.85	2.99	5.34	2.80
1917	3.66	5.21	3.49	52⅛	3.48	3.56	3.95	6.29	8.21	6.15	7.85	4.46
1918	2.99	3.24	2.89	51⅛	3.25	3.50	2.89	4.98	6.24	4.23	7.73	3.79
1919	2.53	2.71	2.43	56¾	3.06	3.31	2.51	4.43	5.78	3.63	7.08	3.32
1920	2.99	3.20	2.99	55⅝	3.40	3.67	3.00	5.85	7.39	5.06	7.29	3.63
1921	1.07	1.96	1.89	63¾	2.77	2.98	1.96	3.54	4.57	2.74	5.83	2.69
1922	1.70	1.71	1.70	69½	2.31	2.51	1.72	3.19	4.19	2.43	4.73	2.31

end of September, 1920, that some mills had to curtail their production on account of lack of shipping instructions. In the twelve month then ended about 38,700,000 tons of ingots had been produced. In the nine months through June of this year about 33,700,000 tons has been produced, leaving only 5,000,000 tons to be made in the next three months if the twelve-month production of three years ago is to be duplicated. In other words, the steel mills have been functioning better this time, not having deficiencies in coke and transportation.

STEEL AND GENERAL BUSINESS

Nothing has gone wrong with steel. It has been developing as was to have been expected. One can only say that steel has gone wrong after he has proved that steel ought not to do what it has always done in the past.

One observes a close harmony between steel and business generally. Perhaps that is an accident or a coincidence. Perhaps it is due to the fact that all lines of business are conducted by human beings, whose minds are much the same. Possibly the harmony would not obtain if steel were produced and consumed exclusively by people of English descent, cotton goods by people of Chinese descent and building operations were conducted by horses.

The popular idea seems to be that this wave of conservatism that swept over the country a couple months ago had its origin in Wall Street. That is incorrect. The news came out through Wall Street. Some have attempted to belittle the matter or becloud the issue by saying that there has been "a bear raid." That is simply employing words.

IMPORTANT STEEL PRICE CHANGES

At the end of 1920 prices of independent steel producers had declined to Industrial Board schedule of Mar. 21, 1919, to which U. S. Steel Corporation had meanwhile adhered. These prices are given under date of Jan. 1, 1921, subsequent changes being in open market. Only the more important changes are listed.

BARS.

Jan. 1, 1921	2.35	Mar. 29	1.50
Feb. 11	2.00	May 17	1.60
April 13	2.10	July 26	1.70
June 24	2.00	Aug. 9	1.80
July 5	1.90	Aug. 25	1.90
July 26	1.75	Sept. 27	2.00
Sept. 9, 1921	1.65	Jan. 31, 1923	2.10
Sept. 27	1.60	Feb. 16.	2.20
Nov. 9	1.55	Feb. 23,	2.25
Dec. 19	1.50	April 2,	2.35
Feb. 18, 1922	1.40	April 27	2.40

PLATES

Jan. 1, 1921	2.65	Nov. 9	1.50
Feb. 10	2.40	Feb. 18, 1922	1.40
Feb. 17	2.25	April 5	1.50
Feb. 23	2.10	May 25	1.60
April 13	2.20	July 26	1.70
June 10	2.00	Aug. 9	1.80
July 15	1.90	Aug. 25	2.00
July 26	1.85	Jan. 19, 1923	2.10
Aug. 25, 1921	1.80	Feb. 9	2.20
Sept. 2	1.75	Feb. 23	2.25
Sept. 9	1.65	Mar. 21	2.35
Sept. 27	1.60	April 2,	2.45
Oct. 27	1.55	April 27	2.50

SHAPES

Jan. 1, 1921	2.45	Dec. 21	1.50
Feb. 11	2.25	Feb. 18, 1922	1.40
Feb. 17	2.20	Mar. 9	1.50
Feb. 28	2.10	May 25	1.60
April 13	2.20	July 26	1.70
June 24	2.00	Aug. 9	1.80
July 22	1.90	Aug. 25	2.00
July 26	1.85	Jan. 19, 1923	2.10
Aug. 25, 1921	1.80	Feb. 16	2.20
Sept. 2	1.75	Feb. 23	2.25
Sept. 9	1.70	Mar. 21	2.35
Sept. 26	1.65	April 2	2.45
Sept. 27	1.60	April 27	2.50

STEEL PIPE

Jan. 1, 1921	57½%	Sept. 16	68½%
Mar. 24	58½%	Dec. 16	71%
April 7	59½%	Aug. 23, 1922	68%
April 13	62½%	Oct. 19, 1923	66%
July 9, 1921	64½%	Feb. 3, 1923	64%
		April 19	62%

WIRE NAILS

Jan. 1, 1921	3.25	Dec. 9.	2.75
Feb. 17	3.10	Dec. 21	2.50
Mar. 4	3.00	Feb. 21, 1922	2.40
April 13	3.25	Aug. 30	2.60
June 1	3.00	Sept. 27	2.70
July 9, 1921	2.75	Feb. 1, 1923	2.80
Sept. 12	2.90	Mar. 26.	2.90
		April 20,	3.00

BLACK SHEETS

Jan. 1, 1921	4.35	Sept. 22	3.00
Feb. 11	4.15	Nov. 1	2.90
Mar. 8	4.00	Nov. 25	3.00
Mar. 17	3.85	April 7, 1922	3.15
April 13	4.00	Aug. 14	3.35
July 5	3.50	Feb. 23, 1923	3.60
July 26, 1921	3.25	Mar. 27,	3.75
Aug. 1	3.00	April 3,	4.00
Aug. 25	2.75	April 26	3.85

TIN PLATE

Jan. 1, 1921	7.00	Mar. 21, 1922	4.60
April 13	6.25	April 5	4.65
June 7	6.00	April 24	4.70
June 14	5.75	May 17	4.75
Aug. 1, 1921	5.25	Feb. 26, 1923	5.00
Sept. 15	5.00	Mar. 23	3.00
Sept. 19	4.75	Mar. 27,	5.50

BLUE ANNEALED SHEETS

Jan. 1, 1921	3.55	Sept. 22	2.50
Feb. 11	3.35	Nov. 1	2.25
Feb. 16	3.20	April 7, 1922	2.40
Mar. 8	3.00	Aug. 14	2.50
April 13	3.10	Sept. 20	2.60
June 10	2.90	Nov. 23,	2.50
July 6, 1921	2.65	Feb. 23, 1923	2.75
Aug. 2	2.40	Mar. 23	3.00
Aug. 16	2.25	April 3,	3.25
		April 26	3.00

GALVANIZED SHEETS

Jan. 1, 1921	5.70	Aug. 25	3.75
Feb. 11	5.55	Sept. 22	4.00
Feb. 16	5.35	Nov. 1	3.90
Feb. 24	5.25	Nov. 25	4.00
Mar. 8	5.10	April 7, 1922	4.15
Mar. 17	5.00	Aug. 14,	4.35
June 22	4.75	Feb. 23, 1923	4.75
July 5, 1921	4.50	Mar. 20	5.00
July 22	4.25	April 3,	5.25
Aug. 2	4.00	April 26	5.00

The point is that the bear raid succeeded. There will always be a bear raid when circumstances permit the making of one. Sometimes bear raids are attempted that do not succeed. The manipulators did not make the psychological condition that enabled them to succeed.

Who did make it? Perhaps it was the natural thing for men to become conservative after business had been good for a period of time. There has been much talk of "the business cycle." The object has been to eliminate or tone down the cycle, but it is yet to be proved that talking about the cycle will produce that result. A little more practical psychology would be helpful. To illustrate by something that is past, in 1919 there was a great deal of preaching about there being a great housing shortage so that a great deal of building was absolutely imperative, and therefore the sellers of building materials must reduce their prices and the artisans in the building trades must be content with lower wages. Somehow the argument that there was a heavy demand did not produce the action thus requested. Perhaps there is a similar miss in the talk about the business cycle, that instead of its being eliminated by the talk men have their attention directed to it, there being no question that the next period in the cycle, if it is to continue to operate, would be a decline in activity.

SEMI-FINISHED STEEL

Some sheet bar contracts for third quarter were made at $45.00, but afterwards they were revised to $42.50, which is the price the Carnegie Steel Company proposed to its customers. It had proposed $42.50 for second quarter but it is understood that afterwards it came down to $40.00, the independents, however, securing $42.50 for second quarter. With sheets and tin plates bringing higher prices for third than for second quarter a maintenance of $42.50 seems requisite to preserve stability in the finished products but this may not be easy on account of the mills being now able to supply more semifinished steel than the market is disposed to absorb.

BARS, SHAPES AND PLATES

The market remained at 2.40c for bars and 2.50c for shapes and plates. New buying in all three lines was rather

Allegheny Steel
and
Allegheny Iron

SHEETS BOILER TUBES
PLATES WASHERS
STEEL CASTINGS
Hot and Cold Pressed Stampings

ALLEGHENY STEEL COMPANY
PITTSBURGH, PA.

SOLICITING AGENTS
501 Fifth Ave., New York 1436 Dime Bank Bldg., Detroit, Mich.
Steel Sales Corporation, 129 South Jefferson Street, Chicago.

light in June, the quietness of the market being illustrated by the fact that much was made of a few oil tanks being placed. Structural awards were decidedly light. Merchant bars remained in heavy demand on old orders and contracts but this did not help the mills that had kept their order books relatively free in the hope that they would be able to profit by a premium market during the second quarter, the period of year which in 1920 was marked by such scarcity.

TUBULAR GOODS

Pressure upon pipe mills continued heavy for deliveries of merchant pipe. The pipe mills were unable to operate well on account of shortage of labor in cutting and threading departments. Old orders in line pipe supplied a considerable tonnage, and there was, after all, a fair demand for oil country goods generally. The much heralded declines in oil prices did not stop drilling completely by any means.

SHEETS AND TIN PLATES

During June tin plate presented the interesting spectacle of there being scarcely any new buying, for forward delivery, and of there being heavy pressure by buyers to secure deliveries on their old orders at least on time if not ahead of time. Production continued to be restricted by labor shortage. The outlook is that there will be barely enough tin plate to take care of the canning crops, nearly all of which are particularly heavy, but that the general line buyers will be very conservative.

The independent sheet mills reported for May sales at 82.7% of capacity, production at 88.6% and shipments at 94.7%. Sales decreased considerably in June and production and shipments slightly. The leading interest was already sold up, against an estimated production higher than can be attained.

The tin plate and sheet prices ruled very steady during June. The last of the premiums on blue annealed sheets, for early delivery, disappeared.

WIRE PRODUCTS

Wire mills made much progress in June in catching up on deliveries. While their operations were reduced in some cases by physical causes the demand for fencing and plain wire was lighter. nails continued but the mills were able to make shorter delivery promises on new orders than formerly. The market ruled steady at 2.75c for plain wire and $3.00 for nails.

FABRICATED STEEL

Steel fabricators who make trade reports from week to week booked orders in June aggregating close to 100,000 tons. These are verbal awards and are practically the same aggregte tonnage as reported taken in May. Including the small shops which report only to the Bureau of Census in connection with the fabricating associations, the total for June may be upward of 125,000 tons against 130,929 tons reported through Government sources for May.

According to the returns made by the Bureau of Census in co-operation with the Structural Steel Society, actual orders booked in the first six months of this year, with June estimated, amounted to 1,016,163 tons, equivalent to a little less than 74½% of shop capacity. Estimated total bookings for the entire fabricating shop capacity of the country for the six months would be close to 1,218,000 tons.

As usual the Government in May again made revisions of the monthly tonnage booked since the first of the year and probably a similar revision will again be made when June sales are reported.

In June the largest contracts were placed by oil companies, mainly for storage tanks, such contracts calling for nearly 32,000 tons of steel; public utility orders amounted to nearly 29,000 tons; commercial buildings called for nearly 11,000 tons; municipal, state and national government work called for 7,500 tons; manufacturing extensions for between 5,000 and 6,000 tons; railroads, mainly for bridges, nearly 5,000 tons; highway bridges, slightly over 2,000 tons; apartment buildings and miscellaneous work, mainly in the east, between 5,000 and 6,000 tons.

Outside of the Philadelphia subways which call for 50,000 tons the new inquiries which came into the market in June amounted to between 50,000 and 60,000 tons. Among the largest individual contracts pending are 4,500 tons for approaches to the New York-New Jersey vehicular tunnel, 5,200 tons for Pere Marquette car ferries, 10,000 tons for merchant ships, 1,500 tons for General Electric Company building in Philadelphia, 2,000 tons for cable supports on the Philadelphia & Camden bridge, and

about 4,000 tons for school buildings besides numerous small inquiries ranging from 100 to 800 tons each. On the other hand five or six projects were either withdrawn or postponed, calling for an aggregate of 12,000 tons of steel.

Total sales of 130,929 tons were reported to the Government for May by firms with a capacity of 225,790 tons per month.

Tonnage booked each month by 175 identical firms, with a capacity of 229,575 tons per month, is shown below, together with the per cent. of shop capacity represented by these bookings. For comparative purposes, the figures are also prorated to obtain an estimated total for the United States on a capacity of 250,000 tons per month.

1922	Actual Tonnage booked	per cent. of capacity	Estimated Total bookings
April ...	200,588	87	217,500
May	184,638	81	202,500
June	168,498	73	182,500
July	157,631	69	172,500
Aug.	156,011	68	170,000
Sept. ...	146,146	64	160,000
Oct.	132,450	58	145,000
Nov.	111,794	49	122,500
Dec	138,024	60	150,000
1923—			
Jan.	172,415	75	187,500
Feb.	183,938	80	200,000
March ...	218,997	95	237,500
April	184,884*	81	202,500
May	130,929†	58	145,000

* Reported by 166 firms with a capacity of 228,455 tons.

† Reported by 157 firms with a capacity of 225,790 tons.

Percentage of fabricated orders to total shop capacity.

	1922	1921	1920	1919	1918	1917
Jan.	40%	18%	75%	12%	53%	61½
Feb.	43½	14	95	12½	55½	59
Mar.	77	29	83½	17½	47	68
April	89	31	68	24½	64	61
May	81	28	61½	49	60	56½
June	73	37	50	65	56	47½
July	69	33½	50	74	116½	41½
Aug.	68	33	40	78½	57	38
Sept.	64	48	43	78½	60	29
Oct.	58	54	25½	77½	43	61½
Nov.	49	55	27½	69	27	77
Dec.	58	40	26	85	29	114
Av.	64.2	35	53¾	53½	55½	59½

1923—	
January	75
February	80
March	95
April	81
May	58

FERRO-ALLOYS

Small sales of ferromanganese were made throughout June but toward the close of the month one contract for 500 tons of British alloy was closed at $125 seaboard for shipment over the last half of the year. A few small lots were also sold for prompt shipment at $125 and some resale lots were disposed of at $120 seaboard. Practically all large consumers have prospective requirements for the last half of the year covered. Domestic producers continued to quote $125.00 seaboard for prompt and third quarter shipment but booked very few orders.

Demand for spiegeleisen also was light throughout the month but with moderate offerings the market remained steady at $45.00 to $47.50 for 19% to 21% and at $44.00 to $46.50 for 16% to 19% f.o.b. furnace. Some small lots of imported alloy sold at slightly higher prices duty paid for early shipment.

Ferrosilicon 50% was quiet and easier throughout the month with consumers well covered, most of the new business was confined to carload lots, the minimum price for such amounts being $92.00 delivered although there were some reports from the interior that exceptional lots were available at $90.00 delivered. The lower prices for pig iron are expected to be shown in a reduction of prices in Bessemer ferro-silicon and for silvery iron.

A slightly firmer tone was developed for ferro-tungsten, sales of small lots being made at 90.00c to 92.00c for lump guaranteed and 95.00c to 97.00c for granulated. Toward the close of the month there was some increase in the demand for tungsten ore through increased speculative interest, only small sales being made on consumers' account, sales of 225 tons of high grade wolframite and scheelite being made at $8.75 to 9.00c a unit, while for ordinary quality of Chinese ore sales were made at $8.25 to $8.50 per unit.

The principal feature of interest in manganese ore during the month was the purchase of 50,000 tons of Indian ore by the U. S. Steel Corporation, which it is understood to have purchased at prices ranging from 41.00c to 42.00c a unit although early in the year both Indian and Brazilian manganese was held at 45.00c a unit c.i.f. north Atlantic

ports. The Steel Corporation also recently acquired by purchase the manganese ore mine in Russia. Toward the close of the month offerings of Brazilian Caucasian and Indian manganese ore were light.

SCRAP

During June heavy melting steel scrap declined $1.50 in the Philadelphia market, $2.00 in the Pittsburgh market and $1.25 in the Chicago market. In every district the high point had been reached between March 15th and March 20th, since when there have been practically continuous declines.

IRON AND STEEL SCRAP PRICES

	Heavy melting steel.			No. 1 cast.	
	Pitts.	Phila.	Chic.	Pitts.	Chic.*
Jan., '22	14.67	11.45	11.70	16.60	12.75
Feb. ...	14.25	11.50	11.75	16.25	12.80
Mar. ...	25.35	11.75	12.50	16.25	13.50
April ..	16.60	14.25	13.80	17.25	14.70
May ...	17.25	14.70	14.95	18.25	15.80
June ...	17.25	14.50	14.80	18.60	15.50
July ...	16.85	14.40	15.40	19.25	16.00
Aug. ...	17.45	14.75	16.00	19.35	17.25
Sept. ..	20.00	17.00	17.50	21.75	18.60
Oct. ...	21.00	18.35	18.65	24.00	19.60
Nov. ...	20.50	16.65	17.60	23.20	18.50
Dec. ...	20.40	16.70	17.50	22.75	18.35
Year ..	17.63	14.67	15.18	19.46	16.11
Jan., '23	22.00	20.85	19.30	23.50	20.40
Feb. ...	23.35	21.10	20.00	24.15	22.50
Mar. ...	25.30	35.25	23.45	26.25	24.75
April ..	25.00	24.00	22.25	27.15	23.20
May ...	22.50	20.25	19.50	26.25	20.75
June ...	21.10	18.30	18.25	24.40	18.85

* Per net ton.

COAL

A definite slowing up movement seems to have taken place in the soft coal trade of the United States within the past month and July 1st found it in a state of fairly normal lassitude. That is, dullness characteristic of the Summer months is beginning to appear in the bituminous trade, and while it seems, in the east, to be the continuation of a sluggishness of several months' duration, it is looked upon as only to be expected at this season of the year. For a short time, there was some sign of life in the eastern trade, due to the lifting of embargoes which had tide up the movement of soft coal on New England railroads. Therefore, for a time, it seemed that the trade in the eastern sections was to be revived. This was short lived, however, and coal wholesalers apparently think that a buying revival around the latter part of August or early September is the best they can hope for.

Recent reports from the smokeless fields of West Virginia show that further weakening in these coals has developed due to the decline in demand from inland markets in addition to the falling off in tidewater demand. The latter forced a large tonnage into the inland markets, and the result was that prices declined so sharply that many New River and Pocahontas operators are now shutting down their mines rather than operate at the current low scale of prices and receive no profit therefore. It is understood that some of these coals have sold recently well under $3.00 net ton at the mines, whereas only a month or so ago, they were scarce at $4.00 and $4.25 net.

At the Hampton Roads piers, these same coals are in plentiful supply, and on the last day of June there was, all told, nearly 300,000 tons of coal at these piers. To offset this, there were only 10 vessels waiting to take 25,000 tons of this coal. Prices, therefore, are down around $5.00 to $5.25 gross ton f.o.b. piers for the same coals that were bringing as high as $7.00 two months ago, and as high as $6.00 only a month ago. In fact, during the last week in June, some of the best of the low volatile smokeless coals at the Hampton Roads piers sold as low as $4.90 gross ton and under, but some of this was sacrificed so that the holders would not go into July with demurrages charged against them.

Naturally, the hot weather experienced during the latter part of June had a deterrent effect on the coal trade generally, as buyers who would normally be inclined to forget the coal problem during the Summer, were influenced to put it out of their minds somewhat earlier than usual. The general exodus for the July 4th holiday also considerably deadened the tone to the soft coal market around the early part of this month.

In New England also, it is generally agreed that the West Virginia smokeless coals as a whole are very dull and new orders are extremely scarce. No real expansion there was looked for until the holiday was over, and industrial conditions while improving, do not as yet offer much encouragement to the buying movement. The textile mills are reported to be finding business rather slow.

In Chicago, the dominant thought in the market is that mine storage piles in the southern Illinois fields have been largely cleaned up and therefore have ceased to be a factor in beating down the price of steam coal in that territory. The market as a whole in that section is decidedly quiet, but there is an undertone of better feeling occasioned by the talk of possible trouble in the anthracite fields on September 1st.

The anthracite miners have framed eleven demands, which are to be presented to the operators at wage conferences held in Atlantic City, the most important of these demands being one for an increase of twenty per cent. in wages over the current scale. The operators will probably counter, however, with a proposal for a wage reduction, and in any event, there is still ample time in which to thoroughly discuss the views of both sides. Furthermore, the United States Coal Commission has already advised the miners that a strike this Fall will not be tolerated by the public.

It is possible that prices of soft coal at the Pennsylvania mines might be materially increased should a strike in the anthracite fields appear imminent. At present, however, they are about at rock bottom, and many of the poorer grade mines are indefinitely closed down. Current spot quotations on the Pennsylvania soft coals are about as follows: Pool 1, $3.50 to $3.75 net ton at the mines; pool 71, $2.60 to $2.75; pool 9, $2.35 to $2.50; pool 10, $1.90 to $2.15, and pool 11, $1.75 to $2.00.

CONNELLSVILLE COKE

Spot furnace coke weakened a trifle during June while spot foundry coke came down to a close margin above furnace coke. Third quarter contract furnace coke continued declining, eventually reaching the spot market, for on the last day of June a contract for the requirements of one furnace was closed at under $5.00. The first transaction in third quarter coke had been made early in March, when a furnace buying for second quarter at $7.25 bought at the same time for third quarter at $7.50.

A few furnaces did not cover for coke, preferring to take chances with the spot or prompt market. Some furnaces expected to blow out shortly, though that would not prevent their contracting, since contracts are always of the "requirement" character, being automatically suspended when a furnace is out.

STEEL INGOT OUTPUT

Monthly production of steel ingots, January, 1922, To December, 1922. Reported by companies which made 84.15% of the steel ingot production in 1922.

Months 1922.	Open-hearth	Bessemer	All Other	Monthly Production Companies Reporting	Calculated monthly production all Companies	No. of Working days	Approximate daily production all Companies.
January	1,260,809	331,851	822	1,593,482	1,891,857	26	72,764
February	1,395,835	348,571	616	1,745,022	2,071,772	24	86,324
March	1,918,570	451,386	795	2,370,751	2,814,667	27	104,247
April	1,997,465	445,939	1,109	2,444,513	2,902,240	25	116,090
May	2,214,774	494,893	1,474	2,711,141	3,218,794	27	119,215
June	2,143,708	487,851	2,918	2,634,477	3,127,775	26	120,299
July	2,020,572	464,047	2,485	2,487,104	2,952,806	25	118,112
August	1,807,310	404,379	2,893	2,214,582	2,629,256	27	97,380
September ..	1,911,147	460,127	2,505	2,373,799	2,818,261	26	108,395
October	2,352,207	518,010	2,198	2,872,415	3,410,265	26	131,164
November ...	2,360,903	525,945	2,449	2,889,297	3,430,309	26	131,935
December	2,241,104	536,214	2,572	2,779,890	3,300,416	25	132,017
Total	23,624,404	5,469,213	22,836	29,116,453	34,568,418	310	111,511

Monthly production of steel ingots, January, 1923, to June, 1923. Reported for 1923 by companies which made 95.35% of the steel ingot production in 1922.

Months 1922.	Open-hearth	Bessemer	All Other	Monthly Production Companies Reporting	Calculated monthly production all Companies	No. of Working days	Approximate daily production all Companies.
January	2,906,892	728,270	9,467	3,664,629	3,822,369	27	141,569
February	2,613,564	669,903	10,797	3,294,264	3,454,918	24	143,955
March	3,046,309	779,525	12,841	3,858,675	4,046,854	27	149,883
April	2,974,579	772,485	13,933	3,760,997	3,944,412	25	157,776
May	3,136,558	847,418	16,719	4,000,695	4,195,800	27	155,400
June	2,821,239	737,845	15,483	3,574,567	3,748,890	26	144,188
Six mos...	17,499,141	4,555,446	79,240	22,133,827	23,213,243	156	148,803

EXPORTS OF IRON AND STEEL PRODUCTS FROM THE U. S.

Value of tonnage and non-tonnage.

	*1923	*1922	1921
Jan.	$14,866,090	$15,141,083	$137,803,395
Feb.	14,865,590	12,950,603	101,205,061
Mar.	14,543,155	18,836,718	67,870,739
April	20,146,346	17,549,618	49,609,605
May	.....	17,749,475	41,365,886
June	.....	18,649,816	39,975,035
July	.....	14,611,858	27,639,787
Aug.	.....	13,963,749	27,647,816
Sept.	.....	14,380,851	26,740,228
Oct.	.....	14,626,411	29,706,437
Nov.	.....	14,249,434	28,543,142
Dec.	.....	16,668,116	29,502,448

* Excluding machinery.

1922..	$ 188,841,433	1916..	$871,372,322
1921..	607,427,146	1915..	390,897,123
1920..	1,112,904,802	1914..	199,861,684
1919..	968,575,142	1913..	293,934,160
1918..	1,035,291,736	1912..	289,128,420
1917..	1,240,984,979	1911..	249,656,411

Tonnage Lines.

(Gross tons.)

	1923	1922	1921	1920
Jan.	123,190	160,920	547,394	333,601
Feb.	133,902	133,975	393,328	308,185
Mar.	163,920	208,843	230,635	417,216
April	177,471	198,830	162,592	395,120
May	203,389	230,062	104,072	420,359
June	.....	212,295	119,081	402,707
July	.....	157,169	86,523	458,866
Aug.	.....	145,640	75,827	431,484
Sept.	.....	129,475	95,169	409,200
Oct.	.....	132,924	106,582	452,015
Nov.	.....	127,782	122,290	434,297
Dec.	.....	150,170	134,415	498,765

Yearly totals.

1922	1,986,297	1916	6,105,881
1921	2,213,042	1915	3,532,606
1920	4,961,851	1914	1,549,554
1919	4,239,837	1913	2,745,535
1918	5,338,037	1912	2,947,596
1917	6,441,760	1911	2,187,724

IMPORTS OF IRON ORE INTO THE UNITED STATES.

	1923	1922	1921	1920
Jan.	205,532	19,433	82,424	88,881
Feb.	143,702	10,016	47,466	100,105
Mar.	166,626	12,013	26,483	108,643
April	171,459	2,710	35,645	88,670
May	.....	29,707	58,704	103,325
June	.....	133,817	8,424	104,364
July	.....	166,711	7,040	28,846
Aug.	.....	160,173	24,570	174,169
Sept.	.....	127,838	4,954	73,675
Oct.	.....	*123,207	5,838	141,026
Nov.	.....	165,648	12,065	139,854
Dec.	.....	167,221	2,155	117,898

Yearly totals.

1922	1,140,463	1916	1,325,736
1921	315,768	1915	1,341,281
1920	1,273,456	1914	1,350,588
1919	476,461	1913	2,594,770
1918	787,468	1912	2,104,576
1917	971,663	1911	1,811,732

* Sept. 22 to Oct. 31.

BITUMINOUS COAL PRODUCTION

(Net tons of 2,000 lbs.)

	1923.	1922.	1921.
Jan. ...	50,178,000	37,604,000	40,270,000
Feb. ...	42,160,000	40,980,000	30,851,000
Mar. ...	46,802,000	50,167,000	30,392,000
April ..	42,564,000	15,700,000	27,553,000
May ...	46,076,000	20,601,000	33,330,000
June ..	45,800,000	22,309,000	33,896,000
July ...	.....	17,003,000	30,385,000
Aug. ...	.....	27,358,000	34,538,000
Sept. ..	.....	39,510,000	35,127,000
Oct. ...	.....	45,141,000	43,733,000
Nov. ...	.....	45,303,000	36,020,000
Dec. ...	.....	44,500,000	30,975,000
Total ...	.....	405,944,000	407,000,000

CONNELLSVILLE COKE.

Spot for prompt, per net ton f.o.b. ovens.

	— Furnace —			— Foundry —		
	1923.	1922.	1921.	1923.	1922.	1921
Jan.	8.30	2.85	5.10	9.25	4.00	6.75
Feb.	7.30	3.10	4.80	8.50	4.15	6.15
Mar.	7.35	3.38	4.43	8.60	4.50	5.63
Apr.	6.25	4.44	3.60	7.80	5.21	5.15
May	5.25	6.50	3.40	6.50	6.75	5.10
June	5.00	7.50	3.12	5.85	7.85	4.67
July	....	11.35	2.95	....	11.70	4.20
Aug.	....	13.35	2.95	....	15.00	4.20
Sept.	....	11.50	3.26	....	13.25	4.34
Oct.	....	9.70	3.35	....	11.90	4.40
Nov.	....	7.35	3.15	....	8.70	4.17
Dec.	....	7.75	2.90	....	8.15	4.00
Av.	....	7.40	3.58	....	8.43	4.90

BRITISH IRON AND STEEL OUTPUT.

Pig Iron—(Gross tons).

	1923	1922	1921
Jan.	567,900	288,000	642,100
Feb.	543,400	300,100	463,600
March ...	633,600	389,800	386,000
April	652,200	394,300	60,300
May	714,200	407,900	13,600
June	.....	369,200	800
July	.....	399,100	10,200
Aug.	.....	411,700	94,200
Sept.	.....	430,300	158,300
Oct.	.....	481,500	235,500
Nov.	.....	493,900	271,800
Dec.	.....	533,700	275,000
Total ...	.....	4,899,500	2,611,400

Steel Ingots and Castings.

	1923	1922	1921
Jan.	624,300	327,500	493,400
Feb.	707,100	418,800	483,500
March ...	802,500	549,400	359,100
April	749,400	404,200	70,600
May	821,000	462,300	5,700
June	.....	400,200	2,700
July	.....	473,100	117,200
Aug.	.....	520,800	434,100
Sept.	.....	555,900	429,300
Oct.	.....	565,200	405,400
Nov.	.....	600,800	442,800
Dec.	.....	546,100	381,000
Total ...	.....	5,831,900	3,624,800

COPPER IN JUNE

American consumers of copper remained extremely conservative throughout June although in the second week of the month they were induced to buy a little more freely as a result of heavier purchases by foreign consumers in Europe. Most of the buying on domestic account was for third quarter shipment. Total sales by domestic and foreign consumers for the month were in the neighborhood of 100,000,000 lbs. In one week sales aggregated 80,000,000 pounds, of which 50,000,000 pounds were for export and throughout the month foreign melters probably took two-thirds to three-quarters of the copper disposed of. This increased temporary buying brought about a recovery of ⅛c to ¼c a pound in prices which was later lost and a further recession brought about a decline of ⅜c to ½c a pound. The net result when the month closed was a decline of ¼c to ⅜c a pound. At the beginning of the month producers were selling electrolytic at 14.87½c to 15.00c and the rise culminated at 15.12½c to 15.25c while at the close of the month the market had dropped to 14.62½c delivered with the tendency still downward.

Notwithstanding the improved statistical position of the industry, home consumers, having bought heavily in the first quarter of the year, continued more or less reserved and toward the close of the month there were requests for delays in shipments against contracts, indicating reduced melting by fabricators and manufacturers of finished products.

It is estimated that domestic consumers received copper at the rate of about 130,000,000 pounds a month in the first quarter although it is doubtful that this amount of copper was melted, while in the second quarter the indication is that consumption was down to at least 120,000,000 pounds, making the average monthly consumption in the first half of the year 125,000,000 pounds. A further reduction in the third quarter seems probable from present indications while the fourth quarter is likely to be the poorest of the year. If home consumption averages 100,000,000 pounds a month in 1923, it may be regarded as very satisfactory.

It is notable that in the outside market prices prevailing through second hands were relatively higher than those asked by producers. This was especially pronounced in making sales for export. The differential, however, was narrowed late in the month and for a time sales made by dealers were at a slightly lower level than prices obtained by first hands but at the close of the month second hands were asking as much for electrolytic at refineries as producers were willing to sell at delivered to consumers. The net decline in prices in the outside market, however, was ¼c to ⅜c a pound, electrolytic being held at the close of the month at 14.50c refinery for prompt, August and third quarter shipment and at 14.62½c refinery for fourth quarter shipment.

The statistical position improved decidedly during the first half of the year but developments in the second quarter were less satisfactory than in the first quarter. Refined output in the United States from domestic and foreign material in the first half of the year was a little over 1,000,000,000 pounds or at the rate of 167,000,000 pounds a month. Refined copper derived from domestic material was about 750,000,000 pounds and from foreign material plus refined imports, 252,000,000 pounds, or a total of 1,002,000,000 pounds.

Deliveries into domestic consumption averaged approximately the same as production, that is, 125,000,000 pounds a month while exports—after making allowance for foreign shipments of finished products — averaged 51,500,000 pounds a month or a total of 309,000,000 pounds, making total deliveries on domestic and foreign account 1,059,000,000

COPPER IN JUNE

	— New York —		— London —		
Day	Lake.	Electro.	Cast.	Stand.	Electro.
				£ s. d.	£ s. d.
1	15.37½	14.81¼	14.62½	66 17 6	73 0 0
4	15.25	14.87½	14.62½	67 7 6	73 10 0
5	15.25	14.87½	14.56¼	66 15 0	73 10 0
6	15.25	14.87½	14.56¼	66 12 6	73 10 0
7	15.25	14.87½	14.56¼	66 17 6	73 10 0
8	15.25	14.87½	14.56¼	67 2 6	73 10 0
11	15.31¼	15.00	14.56¼	67 5 0	73 10 0
12	15.37½	15.12½	14.75	67 17 6	74 10 0
13	15.37½	15.18¾	14.81¼	68 7 6	75 0 0
14	15.37½	15.18¾	14.81¼	68 5 0	74 10 0
15	15.37½	15.18¾	14.81¼	68 0 0	74 10 0
18	15.37½	15.12½	14.75	67 5 0	74 0 0
19	15.37½	15.06¼	14.70	66 12 6	73 10 0
20	15.25	14.93¾	14.62½	66 7 6	73 0 0
21	15.12½	14.80	14.50	66 0 0	73 0 0
22	15.12½	14.75	14.50	66 0 0	73 0 0
25	15.12½	14.75	14.50	65 15 0	72 10 0
26	15.12½	14.62½	14.37½	65 5 0	72 0 0
27	15.12½	14.62½	14.37½	64 17 6	71 10 0
28	15.00	14.50	14.25	64 7 6	71 10 0
29	15.00	14.50	14.25	64 17 6	71 10 0
High ..	15.37½	15.25	14.87½	68 7 6	75 0 0
Low ...	15.00	14.50	14.25	64 7 6	71 10 0
Aver. ..	15.24	14.88	14.57	66 12 2	73 4 9

pounds which was at an average rate of 176,500,000 pounds a month. This indicates that deliveries in the United States exceeded refined output by 57,000,000 pounds, or at the rate of 9,500,000 pounds a month. According to the United States Government, stocks on January 1, 1923 were 277,000,000 pounds so that stocks on July 1st were approximately 220,000,000 pounds.

Taking another standpoint which includes output in South America which did not come to the United States but was exported directly to Europe, it is shown that production of refined copper in this country and in South America in the first half of the year amounted to 1,068,000,000 pounds, 318,000,000 pounds having been derived from foreign material and 750,000,000 pounds from domestic material. This indicates that refined production in the western hemisphere averaged 178,000,000 pounds a month.

Deliveries, as previously noted, in the United States were 750,000,000 pounds; exports made from the United States alone, 309,000,000 pounds, while exports of 90,000,000 pounds are understood to have been made from foreign countries, mainly South America. This makes total deliveries in the western hemisphere during the first six months, 1,149,000,000 pounds or at an average rate of 191,500,000 pounds a month. These figures indicate that deliveries into domestic and foreign consumption exceeded production by 81,000,000 pounds or at an average rate of 13,500,000 pounds a month. Stocks in the United States and elsewhere on January 1st, 1923, according to records of the export association, were 298,800,000 pounds. Deducting the excess of deliveries over production would leave stocks on July 1st of 217,800,000 pounds. These stocks are from 12,000,000 to 15,000,000 pounds larger than those estimated by some trade authorities but this slight difference is without significance. The trend was the same from whatever standpoint is taken.

Another point of some interest is that output of blister copper in the Americas in first half of the year was somewhat larger than refined output, the average monthly production of the smelters being about 185,000,000 pounds, making a total of 1,110,000,000 pounds for the first six months. Thus blister output exceeded refined output by 42,000,000 pounds. According to the United States Government stocks of blister cop-

Dallas Brass & Copper Co.

Manufacturers of

Brass and Copper Products

Prompt Mill Deliveries

Prompt Shipments From Warehouses

CLEVELAND CHICAGO DETROIT

per held January 1st 1923, were estimated 352,000,000 pounds. On July 1st 1923, therefore, it is indicated that blister stocks were 394,000,000 pounds. Total blister and refined stocks today therefore are in excess of 600,000,000 pounds.

Imports into the United States in the first four months this year averaged 42,000,000 pounds a month and this average was probably maintained during the entire first half of the year—total 252,000,000 pounds.

Another interesting development of the month was the exhaustion of the surplus stocks held by the Copper Export Association, there having been a reduction of such stocks of about 10,000,000 pounds in June. This surplus is no longer hanging over the market. At one time it will be recalled that 400,000,000 pounds were held in reserve for foreign shipment.

WATERBURY COPPER AVERAGES

	1923.	1922.	1921.	1920.	1919.
Jan. ..	14.87½	13.87½	13.75	19.50	23.00
Feb. ..	15.75	13.37½	13.50	19.12½	18.00
Mar. ..	17.25	13.12½	12.62½	18.87½	15.50
Apr. ..	17.12½	13.00	12.75	19.12½	15.50
May ..	16.12½	13.37½	13.12½	19.00	16.37½
June ..	15.25	14.00	13.12½	18.50	17.75
July ..	.....	14.12½	12.87½	19.00	22.00
Aug. ..	.....	14.12½	12.25	18.75	23.00
Sept. ..	.....	14.25	12.37½	18.75	22.50
Oct. ..	.....	14.25	13.12½	16.87½	22.25
Nov. ..	.....	14.12½	13.37½	15.25	21.00
Dec. ..	.....	14.50	13.87½	14.25	18.75
Av. ...	.....	13.84	13.06	18.06	19.63½

Annual Averages.

1918.....	24.75	1913.....	15.83
1917.....	30.11	1912.....	16.71
1916.....	28.85	1911.....	12.75
1915.....	18.94	1910.....	13.13
1914.....	13.91	1909.....	13.41

IMPORTS OF COPPER.

As compiled by the New York Metal Exchange and reduced to fine copper, in tons of 2,240 lbs.

	1923.	1922.	1921.	1920.
Jan.	16,500	5,500	17,500	16,500
Feb.	17,000	10,000	18,000	20,000
Mar.	23,500	15,000	10,000	17,500
April	15,500	16,000	15,500	12,000
May	.....	12,000	7,000	23,000
June	.....	19,000	9,000	22,000
July	.....	19,500	14,000	12,000
Aug.	.....	21,000	10,000	13,000
Sept.	.....	25,000	10,500	12,500
Oct.	.....	18,000	14,500	14,500
Nov.	.....	33,000	11,000	16,000
Dec.	.....	26,000	14,000	17,500
Totals ...	.....	220,000	151,000	196,500

LAKE COPPER PRICES

Average prices in New York

	1923.	1922.	1921.	1920.	1919.
Jan. ...	14.92	13.76	13.53	19.76	21.75
Feb. ...	15.76	13.24	13.33	19.09	17.87
Mar. ...	17.26	13.03	12.58	18.87	15.48
April ..	17.13	12.91	12.89	19.05	15.73
May ...	16.12	13.42	13.12	18.85	16.30
June ...	15.24	13.97	13.04	18.55	17.93
July ...	.....	14.07	12.75	18.83	22.08
Aug. ...	.....	14.09	12.11	18.72	22.96
Sept. ...	.....	14.19	12.23	18.53	22.48
Oct.	.....	14.16	13.01	16.87	21.94
Nov. ...	.....	14.07	13.30	14.97	20.49
Dec. ...	.....	14.46	13.80	14.01	18.88
Average	.....	13.78	12.98	18.01	19.49

Annual Averages.

1918	24.68	1913	15.70
1917	29.18	1912	16.58
1916	28.17	1911	12.71
1915	17.64	1910	13.12
1914	13.61	1909	13.39

ELECTROLYTIC COPPER PRICES

Average prices in New York

	1923.	1922.	1921.	1920.	1919.
Jan. ...	14.66	13.60	12.85	19.02	20.00
Feb. ...	15.50	12.97	12.79	18.61	16.91
Mar. ...	16.95	12.84	12.23	18.36	15.01
April ..	16.81	12.71	12.54	18.54	15.40
May ...	15.63	13.29	12.83	18.28	16.01
June ...	14.88	13.71	12.76	17.97	17.65
July ...	.....	13.90	12.35	18.61	21.71
Aug. ...	.....	13.96	11.76	18.44	22.22
Sept. ...	.....	13.88	12.10	18.04	21.95
Oct.	.....	13.80	12.75	16.30	21.50
Nov. ...	.....	13.79	13.16	14.39	19.96
Dec. ...	.....	14.22	13.67	13.48	18.48
Average	.....	13.55	12.65	17.50	18.90

Annual Averages.

1918	24.68	1913	15.52
1917	29.19	1912	16.48
1916	28.46	1911	12.55
1915	17.47	1910	12.88
1914	13.31	1909	13.11

CASTING COPPER PRICES

Average prices in New York

	1923.	1922.	1921.	1920.	1919.
Jan. ...	14.30	12.96	12.61	18.81	18.48
Feb. ...	15.15	12.61	12.45	18.21	16.45
Mar. ...	16.64	12.54	11.83	18.11	14.82
April ..	16.60	12.46	11.82	18.40	15.06
May ...	15.45	12.84	12.24	18.16	15.49
June ...	14.57	13.33	12.08	17.65	17.17
July ...	.....	13.34	11.68	18.12	21.10
Aug. ...	.....	13.43	11.43	18.00	21.71
Sept. ...	.....	13.39	11.75	17.76	21.28
Oct.	.....	13.39	12.43	16.01	20.66
Nov. ...	.....	13.40	12.53	14.12	19.37
Dec. ...	.....	13.81	12.97	13.12	18.21
Average	.....	13.13	12.15	17.21	18.32

Annual Averages.

1918	24.68	1914	13.18
1917	27.64	1913	15.33
1916	26.51	1912	16.29
1915	16.76	1911	12.42

COPPER AND BRASS PRODUCTS

As a result of the sagging market for unwrought copper and the falling off in the demand for finished products, the American Brass Company on June 27th made a reduction in prices on copper and brass products ranging from ½c to 1c a pound, the lower prices becoming effective June 27th. Copper products, with the exception of wire and tubes, were reduced ½c a pound. Copper anodes were down 1c per pound base. Extras on anodes were unchanged but on other copper products extras were reduced to 10% from list. Although the largest interest made no change in prices of copper wire some of the other manufacturers did change prices. Brass products were reduced ¾c base and extras were less 10% with the exception of seamless tubing on which no change was made either on base or extras. At the close of the month there were rumors that a further reduction of ¼c a pound was made in the price of copper sheets but the latter change was not officially verified by the largest interest. Nickel silver was also reduced ¾c a pound to 29.50c for 18% Grade A sheets.

The smaller demand from consumers for all brass and copper products gave the manufacturers an opportunity to make further gains in arrears against contracts. In some departments shipments are still two to four weeks behind on contracts and on other products makers still have orders equivalent to three to four months capacity. The general tendency however, is toward an easier position. Toward the close of the month not a few requests were received by mills for delay in shipments against contracts, and in turn brass and copper mills requested delay in shipments of unwrought copper.

Early in April orders for fabricated copper and brass on the books of the American Brass Company were approximately 100,000,000 pounds. On June 1st similar orders amounted to about 80,000,000 pounds. Thus the indication is that monthly shipments averaged about 10,000,000 pounds more than current orders. If the same rate of decrease was continued in June, unfilled orders on July 1st amounted to about 70,000,000 pounds. It is understood, however, that bookings in June fell off to a greater extent than in the preceding two months. Shipments of the Anaconda Company, including the American Brass and the Great Falls mills in Montana, in

BRASS AND COPPER PRODUCTS.

The last two price lists issued follow:

COPPER PRODUCTS.

	May 15	June 26
Sheet copper	24¼	23¾
Copper bottoms	32¾	32¼
Copper in rolls	22¾	22¼
Brush copper	25¼	24¾
Sawed copper	25	24½
Drawn copper shapes	22¾	22¼
Commutator copper	24	23½

BRASS PRODUCTS.

Sheet Metal.

High brass	20½	19¾
Low brass	22¼	21½
Rich low brass	22¾	22
Commercial bronze and gilding	24⅛	23⅜
Best spring drawing and spinning brass	21½	20¾

Wire.

High brass	21	20¼
Low brass	22¾	22
Commercial bronze and gilding	24⅝	23⅞
Best spring and brazing brass	22	21¼

Rods.

High brass (free turning)	18¾	18
Low brass	23	22¼
Commercial bronze	24⅞	24⅛

Brazed Tubes.

Brass	28½	27¾
Copper and commercial bronze	33⅞	33⅛
Open seam brass	28½	27¾
Open seam copper and commercial bronze	33⅞	33⅛

Seamless Tubes.

	Mar. 22	May 15
High brass	26½	25½
Low brass	28½	27½
Commercial bronze	29½	28½
Copper	28	27

NICKEL SILVER.

	May 15	June 26
10% grade A sheet metal	27¾	27
15% " " " "	29¼	28½
18% " " " "	30¼	29½
25% " " " "	40½	40
5% grade B sheet metal	25¾	25
10% " " " "	27¼	26½
12% " " " "	28	27½
15% " " " "	28¾	28
18% " " " "	29¾	29
25% " " " "	40	39½
5% wire and rod	27¾	27
10% " " "	30¾	30
12% " " "	32¼	31¾
15% " " "	34¼	33½
18% " " "	37¼	36½

April and May are understood to have averaged between 60,000,000 and 62,000,000 pounds a month which is a new maximum record.

One of the interesting developments in copper products was the large exports of rods made during the first quarter of the year, when the average monthly foreign shipments was a little under 6,500,000 pounds. It is not surprising, however, that with the record-breaking orders taken for domestic shipment that foreign shipments should also have increased during the first three months of the year. In the last three months, however, exports as well as home orders for rods have fallen off. The export movement of copper plates and sheets in the first quarter of this year, while larger than in the corresponding period of 1921 was considerably smaller than in 1920 and 1922. In tubular copper the showing was not quite so satisfactory. In the case of copper rods all post-war records were broken in the first quarter. In the last few months, however, there has been a decided decrease.

EXPORTS OF COPPER.

As compiled by the New York Metal Exchange from Custom House returns, in tons of 2,240 lbs.

	1923.	1922.	1921.	1920.
Jan.	23,409	24,679	24,068	21,804
Feb.	21,643	22,910	27,748	25,700
Mar.	28,284	35,851	17,151	39,236
April	28.225	28,367	18,397	28,644
May	24,519	27,894	15,736	37,090
June	.....	29,191	22,339	25,581
July	.....	28,584	22,774	20,430
Aug.	.....	26,889	19,110	20,121
Sept.	.....	25,144	28,343	10,751
Oct.	.....	22,681	22,934	10,073
Nov.	.....	24,727	32,407	16,954
Dec.	.....	22,201	27,394	18,304
Total	.....	319,118	278,401	274,688

Annual Totals.

1919	227,169		
1918	328,844	1913	382,810
1917	493,256	1912	327,965
1916	327,310	1911	336,801
1915	270,704	1910	301,935
1914	360,229	1909	301,657

TIN IN JUNE

The tin market in June continued the reaction in price which, with slight interruption, has been going on since the middle of last March, when spot tin sold at 51.50c, the net decline being about 3½c a pound.

The month opened at 41.75c, for spot Straits a decline of nearly 1c a pound from the previous business day in May, and during the first week improved to 42.50c. From that point there was a steady and almost daily uninterrupted decline to 39.12½c at the end of the month. The highest price during the month was 42.50c, the lowest 39.00c, the average for the month 41.00c.

The depression in general business, especially in speculative commodities, was continued in London during the month, and while at no time was there any apparent pressure on the part of "bears," the declines that took place were evidently caused by liquidation of tired "bulls," discouraged with reports from America and the indifference shown by the American tin consumers. During June and also in May, American consumers refused to show any interest on the declines, being apparently well supplied with the metal for immediate needs, and also well contracted for into the future and although busy filling old orders for their manufactured goods since they were receiving virtually no new orders continued their policy of staying out of market as buyers.

It was generally expected that the statistics on July 1st would be unfavorable and would show an increase in the visible supply, and this also made for indifference on the part of buyers. As it turned out, however, the statistics proved to be very favorable. Instead of showing an increase in the visible supply, a decrease of 980 tons was shown. This was caused by the European Continental deliveries in June being more than double what they were in May, and the total world deliveries were 926 tons larger than in May. As there was no increase in the shipments of tin from the sources of supply during that month, a decrease in the visible, as mentioned above, resulted.

The shipments of tin in June were large from the Dutch East Indies (Banka tin, which is the grade that the Continent of Europe is now using largely)

MONTHLY TIN STATISTICS

As published by the New York Metal Exchange in tons of 2,240 pounds:

	June 1923.	May 1923.	June 1922.
Supplies—			
Straits	5,390	5,535	6,755
Australian	100	60	75
Banka and Billiton	2,097	1,704	840
Chinese	592	918	454
Standard	880	877	351
	9,059	9,094	8,475
Deliveries—			
U. K. all kinds	1,754	1,763	2,409
U. S. A. all kinds	5,410	6,035	5,130
Continent, all kinds	2,785	1,225	1,997
	9,949	9,023	9,536
Decrease in total visible supply	890	*71	1,061
Stocks—			
U. K. all kinds	4,512	4,257	6,453
U. S. A. all kinds	2,137	3,132	2,390
Continent, all kinds	2,305	2,348	2,844
	8,954	9,737	11,687
Afloat—			
U. K. all kinds	1,138	2,016	3,431
U. S. A. all kinds	8,942	8,173	7,439
Continent, all kinds	2,263	2,261	1,525
	12,343	12,450	12,395
Tot. visible supply	21,297	22,187	24,082

* Increase.

STRAITS TIN PRICES.

Average prices of Straits tin for prompt delivery in New York.

	1923.	1922.	1921.	1920.	1919.
Jan.	39.17	32.11	36.11	62.89	72.50
Feb.	42.03	30.82	32.47	60.00	72.00
Mar.	48.65	29.17	28.85	61.99	71.75
April	45.87	30.65	30.41	62.20	72.26
May	43.16	30.97	32.52	55.07	71.94
June	41.00	31.54	29.57	48.62	71.20
July	.....	31.82	27.69	49.37	70.39
Aug.	.....	32.43	26.40	47.69	63.78
Sept.	.....	32.40	26.73	44.62	55.81
Oct.	.....	34.64	27.74	40.64	55.62
Nov.	.....	36.72	29.02	37.02	54.17
Dec.	.....	37.68	32.49	34.15	55.06
Average	.....	32.58	30.00	50.36	65.54

Yearly Averages.

1919	65.54	1914	35.70
1918	86.80	1913	44.32
1917	61.65	1912	46.43
1916	43.48	1911	42.68
1915	38.66	1910	34.27

TIN DELIVERIES IN UNITED STATES

Monthly deliveries of tin in United States, exclusive of domestic refined tin, in tons of 2,240 pounds.

	†1923.	1922.	1921.	1920.	1919.
Jan.	6,625	4,275	1,555	3,910	1,850
Feb.	6,185	3,215	1,585	5,200	2,450
Mar.	6,634	6,030	1,683	5,130	2,070
April	6,775	4,995	1,590	3,305	36
May	6,035	4,740	1,225	3,550	20
June	5,410	5,130	1,590	6,500	68
July	.....	4,590	1,525	5,530	132
Aug.	.....	4,150	3,320	3,745	4,345
Sept.	.....	5,050	2,605	4,860	4,825
Oct.	.....	5,603	2,280	3,415	2,875
Nov.	.....	4,812	3,250	3,395	6,665
Dec.	.....	4,870	3,710	2,580	6,965
Total	.....	57,460	25,918	51,120	32,301

VISIBLE SUPPLY OF TIN

World's visible supply of tin at end of each month in tons of 2,240 pounds.

	†1923.	1922.	1921.	1920.
Jan.	25,765	26,216	18,994	21,056
Feb	25,157	25,047	17,074	21,586
Mar.	24,622	22,353	16,073	18,305
April	22,116	22,017	15,670	19,342
May	22,187	22,910	18,352	20,976
June	21,297	23,566	17,968	18,851
July	.....	21,502	20,316	18,546
Aug.	.....	24,176*	19,358	19,858
Sept.	.....	22,879*	21,189	18,996
Oct.	.....	22,902	23,349	19,964
Nov.	.....	25,286	22,806	19,823
Dec.	.....	24,930	25,220	19,410
Average	.....	23,649	19,697	19,726

* Includes current shipments of Banka and Chinese to U. S.

Annual Averages.

1919	12,890	1914	14,907
1918	13,894	1913	12,377
1917	18,803	1912	13,207
1916	18,585	1911	16,404
1915	15,208	1910	18,815

TIN SHIPMENTS FROM STRAITS

(Tons of 2,240 lbs.)

	†1923.	1922.	1921.	1920.	1919.
Jan.	6,255	5,515	1,055	3,910	3,340
Feb.	4,655	3,640	240	4,810	2,860
Mar.	6,020	4,985	915	2,795	2,254
April	4,490	5,350	1,800	3,872	1,127
May	5,535	6,420	3,667	4,930	1,704
June	5,390	6,505	1,425	4,261	1,629
July	.....	4,035	3,975	3,865	7,302
Aug.	.....	5,855	3,165	3,798	8,829
Sept.	.....	4,050	5,300	4,529	5,465
Oct.	.....	5,650	4,525	3,340	4,431
Nov.	.....	6,145	4,065	2,630	4,135
Dec.	.....	4,635	5,920	2,225	6,677
Total	.....	62,785	36,052	44,965	49,763

Annual Totals

1918	*55,000	1914	63,093
1917	62,366	1913	62,550
1916	61,587	1912	59,318
1915	66,517	1911	55,470

† **Note — London Metal Exchange statistics** * Estimated.

but the shipments from the Straits were small, only 5,390 tons. This would seem to indicate that the Malay States Government are not taking advantage of the agreement reached April 12th, with the Dutch Government by which the parties to the agreement were privileged, at their individual discretion, to sell up to 5% of their large surplus stocks per month, which stocks, it will be remembered, were some 17,500 tons and are not included in the visible supply. Evidently, the decline since April has been too rapid, and the demand too small to enable the Malay Government to begin their liquidation to any extent and it is very evident that they have overstayed their market and are liquidating very slowly, if at all. This, and the depression that exists in business in many circles, is unfavorable to the price of tin and particularly the absence of buying by American consumers would make an unfavorable outlook as regards future prices. But it must be remembered that the price is almost back to where it was December, 1922, when the big buying movement for the metal commenced in America, which, before it ended, put the price to 51.50c.

While there is no indication that conditions in the metal or in business generally promises to improve in the immediate future, still the decline has been so drastic, that at present prices the metal cannot be considered dear.

As regards the American consumer, the depression of the past two months has been mental rather than physical. Buyers have gone to as great an extreme in their pessimism and withdrawal of purchases as they did early in the year in their optimism the sensational purchases they then made.

As we have called attention to before, the very large deliveries of tin that consumers took during the first five months of the year were in excess of requirements, but this situation must have largely been corrected by their almost complete abstinence from buying in the past two months.

TIN PRICES IN JUNE

Day	New Straits	New York 99%.	London Stand. £ s. d.	London Straits. £ s. d.	Singapore Straits. £ s. d.
1	41.75	41.12½	197 0 0	200 0 0	201 15 0
4	41.50	41.12½	197 2 6	200 2 6	199 10 0
5	41.87½	41.25	197 15 0	200 15 0	200 10 0
6	41.95	41.25	196 17 6	199 17 6	200 0 0
7	42.50	41.75	197 17 6	200 17 6	200 0 0
8	42.25	41.62½	198 10 0	201 0 0	202 5 0
11	42.00	41.50	197 2 6	200 2 6	201 0 0
12	42.00	41.50	197 0 0	200 0 0	201 0 0
13	41.87½	41.37½	196 10 0	199 10 0	201 0 0
14	41.37½	41.87½	194 2 6	197 2 6	200 10 0
15	41.00	40.50	192 5 0	195 5 0	197 0 0
18	40.50	40.25	190 0 0	193 0 0	196 15 0
19	40.25	39.87½	187 15 0	190 0 0	194 7 6
20	40.75	40.25	190 10 0	193 0 0	195 0 0
21	40.12½	39.62½	187 15 0	189 15 0	194 0 0
22	40.50	40.00	188 2 6	191 2 6	191 0 0
25	40.75	40.25	188 15 0	191 17 6	191 5 0
26	40.37½	39.87½	186 15 0	189 15 0	192 10 0
27	39.50	39.00	182 12 6	185 12 6	189 10 0
28	39.00	38.50	180 15 0	183 17 6	185 15 0
29	39.12½	38.62½	182 12 6	185 12 6	185 0 0
High ..	42.50	41.75	198 10 0	201 0 0	202 5 0
Low ..	39.00	38.50	180 15 0	183 17 6	185 0 0
Aver. .	41.00	40.48	191 15 11	194 13 7	196 3 5

ZINC IN JUNE

The market for zinc continued to decline during June, showing an additional recession of about ¾c per pound, viz., from 6.50c E. St. Louis basis for prime Western at beginning of the month to 5.75c at its close.

There was almost constantly throughout the month more zinc offered particularly for prompt shipment than the demand called for.

This was partly a reflection of the less favorable statistics for May, which showed an increase in stocks in smelters' hands for that month of 4,043 tons. The May production had reached the high figure of 47,347 tons and though the shipments in May turned out to have been remarkably good, 43,304 tons (practically all for domestic account), they

LEAD AND ZINC PRICES IN JUNE

Day	LEAD New York *	LEAD New York +	LEAD St. Louis†	LEAD London £ s d	ZINC New York	ZINC St. Louis§	ZINC London £ s d
1 .	7.25	7.30	7.02½	25 15 0	6.82½	6.47½	31 5 0
2 .	7.25	7.30	7.02½	.. .. .	....	....	.. .. .
4 .	7.25	7.30	7.02½	25 15 0	6.75	6.40	31 0 0
5 .	7.25	7.30	7.02½	25 15 0	6.72½	6.37½	30 15 0
6 .	7.25	7.30	7.02½	25 15 0	6.70	6.35	30 12 6
7 .	7.25	7.30	6.97½	26 0 0	6.62½	6.27½	30 5 0
8 .	7.25	7.27½	6.97½	26 0 0	6.60	6.25	30 12 6
9 .	7.25	7.27½	6.97½	.. .. .	....	....	. .. .
10 .	7.25	7.27½	7.00	26 0 0	6.55	6.20	30 17 6
11 .	7.25	7.27½	7.00	26 0 0	6.55	6.20	30 17 6
12 .	7.25	7.27½	6.95	26 0 0	6.50	6.15	30 7 6
13 .	7.25	7.25	6.95	26 0 0	6.47½	6.15	29 17 6
14 .	7.25	7.25	6.95	25 15 0	6.42½	6.07½	29 10 0
15 .	7.25	7.25	6.95	25 15 0	6.35	6.00	29 10 0
16 .	7.25	7.25	6.95	.. .. .	....	....	.. .. .
18 .	7.25	7.25	6.92½	25 10 0	6.35	6.00	29 10 0
19 .	7.25	7.25	6.92½	25 2 6	6.32½	5.97½	29 5 0
20 .	7.25	7.25	6.90	25 2 6	6.27½	5.92½	29 0 0
21 .	7.00	7.25	6.90	25 0 0	6.22½	5.87½	28 12 6
22 .	7.00	7.00	6.75	25 0 0	6.15	5.80	28 10 0
23 .	7.00	7.00	6.75	.. .. .	....	....	.. .. .
25 .	7.00	7.00	6.75	25 2 6	6.12½	5.77½	28 10 0
26 .	7.00	7.00	6.70	25 0 0	6.12½	5.77½	28 0 0
27 .	7.00	7.00	6.67½	24 15 0	6.12½	5.77½	27 12 6
28 .	6.85	7.00	6.65	24 10 0	6.12½	5.77½	28 10 0
29 .	6.85	6.85	6.55	24 7 6	6.12½	5.77½	28 7 6
30 .	6.85	6.85	6.55	.. .. .	....	....	.. .. .
High	7.25	7.35	7.05	26 0 0	6.85	6.50	31 5 0
Low	6.85	6.85	6.50	24 7 6	6.10	5.75	27 12 6
Av.	7.15	7.18	6.88	25 8 7	6.40	6.05	29 10 11

* A. S. & R. price.
† Outside market. § Prime Western.

were not sufficient to offset such a scale of output.

Consuming operations during June have undoubtedly been less than in May, and a more than corresponding decrease in the future production of zinc would seem necessary to stabilize the market, for the prospects are that the high scale of consumption of early 1923 will not be maintained through the balance of the year.

At the close of the month the price had reached a point below the bare cost of production, irrespective of overhead and interest. This even with ore at $33 per ton.

On June 30th the ore producers of the tri-State region of Missouri, Kansas and Oklahoma announced a shut-down of their mines for a period of two weeks, the price of $33.00 for ore being unprofitable. This shut-down may be prolonged and affects 90% of the Joplin district.

It may, therefore, be seen that with ore unprofitable to the miner at $33.00 and even with $33.00 ore, slab zinc unprofitable to the smelter at 5.75c E. St. Louis, the zinc market has had a complete deflation, and is even overdepressed.

U. S. ZINC STATISTICS.

From the monthly reports of the American Zinc Institute, in tons of 2,000 lbs.

	Production		Deliveries	
	1923.	1922.	1923.	1922.
Jan. ..	23,706	25,916	24,636	21,021
Feb. ..	42,443	22,513	48,153	24,067
Mar. ..	48,731	26,532	49,574	30,394
April .	46,866	25,506	47,911	34,040
May ..	47,347	27,419	43,304	38,738
June ..	.....	28,547	.....	39,380
July ..	.....	31,917	.....	32,875
Aug. ..	.....	31,423	.....	38,412
Sept. ..	.....	33,134	.....	35,957
Oct. ..	.....	39,940	.....	40,703
Nov. ..	.....	40,200	.....	38,746
Dec. ..	.....	42,841	.....	44,086
Total	.....	373,678	.....	422,034

	Stocks at Smelters*		Retorts in Operation*	
	1923.	1922.	1923.	1922.
Jan. ..	16,574	65,678	84,131	44,457
Feb. ..	10,864	64,124	86,931	43,357
Mar. ..	10,021	60,262	89,054	45,373
April .	8,976	51,728	89,203	42,773
May ..	13,019	40,409	86,731	48,765
June .	.....	29,576	.....	52,677
July ..	.....	28,618	.....	54,909
Aug. ..	.....	21,629	.....	57,193
Sept. ..	.....	18,806	.....	65,936
Oct. ..	.....	18,043	.....	72,116
Nov. ..	.....	19,947	.....	75,664
Dec. ..	.....	18,252	.....	80,863

* At the end of month.

The ore stocks in the Joplin district at the end of June were about 60,000 tons, but are strongly held.

The recession has undoubtedly gone about as far as circumstances warrant, and at the end of June there was a steadier and firmer tone to the market.

PRIME WESTERN ZINC PRICES.

Average Prices, East St. Louis Basis.

	1923	1922	1921	1920	1919	1918
Jan. .	6.96	4.71	5.44	9.22	7.12	7.71
Feb. .	7.25	4.50	4.95	8.82	6.37	7.73
Mar. .	7.87	4.65	4.73	8.62	6.18	7.42
Apr. .	7.32	4.91	4.75	8.26	6.16	6.81
May .	6.72	5.10	4.86	7.72	6.11	7.14
June .	6.05	5.35	4.44	7.58	6.57	7.85
July .	....	5.77	4.27	7.82	7.56	8.43
Aug. .	....	6.24	4.19	7.95	7.50	8.73
Sept. .	....	6.56	4.25	7.77	7.20	9.31
Oct. .	....	6.85	4.61	7.25	7.49	8.77
Nov. .	....	7.14	4.68	6.37	7.83	8.39
Dec. .	....	7.12	4.85	5.84	8.40	8.21
Av. ..	....	5.74	4.67	7.77	7.04	8.04

Annual Averages.

1917.....	8.93	1912.....	6.93
1916.....	13.57	1911.....	5.70
1915.....	14.16	1910.....	5.42
1914.....	5.11	1909.....	5.39
1913.....	5.61	1908.....	4.62

WATERBURY ZINC AVERAGES.

	1923	1922	1921	1920	1919	1918
Jan. ..	8.00	5.25	6.05	9.75	9.00	9.60
Feb. ..	8.00	5.00	5.50	9.40	8.10	9.60
Mar. ..	8.70	5.10	5.25	9.15	8.00	9.40
Apr. ..	8.25	5.40	5.20	8.85	6.90	8.50
May ..	7.60	5.55	5.30	8.30	6.80	8.95
June .	7.00	5.85	5.00	8.15	7.25	9.50
July ..	....	6.20	4.80	8.45	8.10	10.30
Aug. ..	....	6.50	4.70	8.55	8.15	10.45
Sept. .	....	7.10	4.75	8.45	7.85	11.20
Oct. ..	....	7.65	5.10	7.50	8.15	10.60
Nov. ..	....	7.90	5.15	7.00	8.55	10.20
Dec. ..	....	7.90	5.30	6.40	9.05	10.00
Av. ...	....	6.28	5.17½	8.33	8.00	9.86

JOPLIN ZINC AND LEAD ORES.

Review for June, 1923.

The month of June opened with zinc selling for $39.00 for high grades and rapidly dropped until at the end of the month the price was $33.00 for 60% grades.

The sales for the month averaged around 10,000 tons for the first part of the month, but the smallest sale ever recorded, since the buyers began to publish their purchases, was made the last Saturday of the month, when only 3,500 tons were purchased. This was due to the fact that producers refused to sell

at the low price offered and buyers refused to offer more.

The shipments during the month aggregated 55,295 tons. The average price paid for the month was $35.24. This compares with an average price of $31.86 for the same period last year, and a total monthly shipment of 48,598 tons.

The price of lead ore also took the toboggan during the mnth. The month opened with a price of $91.00 at which point it remained for two weeks, then dropped to $90.00, to $80.00 and closed at $75.00. Shipments of lead totaled 10,704 tons, at an average price of $84.92 per ton. Comparing this with the same period last year—market opened at $75.00, advanced to $80.00 and closed at $78.00, with shipments totaling 6,653 tons and with an average price of $77.06.

The first half of the year shows a total shipment of 367,662 tons of zinc blende at an average price for the entire six months period of $42.24, with a total value of $15,532,088. This compares with 236,569 tons for the same period last year at an average price of $28.87 and with a total value of $6,831,163 or a decrease in the value of the ore shipped of $8,700,455 over that of 1923.

Total amount of lead ore shipped at end of the half year period is 51,940 tons at an average price for the entire period of $101.41, and a total value of $5,267,295. This compares with 46,491 tons for the same period last year, at an average price of $66.58 and a total value of $3,096,036.

The following tables show shipments by months, the average price paid during the period and the total value.

Zinc Ore Shipments

Month	Tons	Av. Price	Tot. Value
January ..	47,197	$40.71	$1,921,485
February .	57,425	42.52	2,443,636
March	94,185	48.15	4,535,539
April	62,519	43.30	2,707,222
May	51,041	38.64	1,972,594
June	55,295	35.24	1,951,612

Lead Ore Shipments

Month	Tons	Av. Price	Tot. Value
January ..	6,846	$96.47	$ 660,436
February .	7,077	109.48	774,819
March	10,485	118.87	1,246,401
April	7,645	109.96	843,076
May	9,183	90.54	833,485
June	10,704	84.92	909,078

With a slump in the zinc ore market to a point where it cost approximately $10.00 per ton more to produce the ore than the producers were able to obtain for it, a decision was reached at a meeting of the operators to close down their properties for a two week's period. At the present time only about thirty properties are running and of these several are only operating until they have produced the ore upon which they have had advances.

A committee of ten operators has been appointed to go into the matter of curtailing production. It is desired to bring the production down to approximately 8,000 tons.

The surplus stocks held in the bins of the ore producers is now estimated to be approximately 55,000 tons.

LEAD IN JUNE

At the beginning of June the American Smelting & Refining Company's contract basing price was 7.25c New York (1.00c per pound below the peak of the advance reached in March,) and the market remained steady during the first three weeks of the month.

The London market, however, which had caused the first downward reactions, again developed weakness, declining to £25 per ton and renewing the threat of importation.

This caused a reduction on June 21st of ¼c per pound in the American Smelting & Refining Company's price to 7.00c, and as the foreign decline continued, a still further reduction followed on June 29th to 6.85c New York.

At the close of June the immediate position of lead in this country was still

LEAD PRICE CHANGES.

The American Smelting & Refining Company's changes in the base price of lead since the beginning of 1922 are given below:

1922—			
Opening	.....	4.70	
Mar. 30	.....	4.80	
April 3	...2	4.90	
" 7	.....	5.00	
" 20	.....	5.10	
" 24	.....	5.25	
May 16	.....	5.35	
" 18	.....	5.50	
" 29	.....	5.65	
June 7	.....	5.75	
Aug. 21	.....	5.90	
Sept. 14	.....	6.00	
" 19	.....	6.10	
" 22	.....	6.25	
" 27	.....	6.35	
Oct. 6	.....	6.50	
Nov. 1	.....	6.75	
Nov. 2	.....	7.00	
" 24	.....	7.10	
Dec. 19	.....	7.25	
1923—			
Jan. 9	.....	7.40	
" 10	.....	7.50	
" 22	.....	7.75	
" 23	.....	8.00	
Feb. 23	.....	8.10	
Mar. 1	.....	8.15	
" 2	.....	8.25	
April 19	.....	8.00	
" 28	.....	7.75	
May 3	.....	7.50	
" 9	.....	7.25	
June 21	.....	7.00	
" 28	.....	6.85	

statistically good. Stocks were small, and producers' forward bookings nearly as good as ever in proportion to their prospective receipts. But signs were not lacking of a diminishing scale of consumption. New orders, over and above contract engagements, were light, and this was not due altogether to buyers' distrust of prices, but evidently to diminishing needs.

The E. St. Louis market for soft Missouri lead during the latter part of June was close to the parity of the New York market, allowing for the freight rate of 35.00c per 100 lbs.

Towards the latter part of the month some outside lots, particularly of desilverized lead, were pressed rather urgently for sale at concessions, and did not find a ready market.

LEAD PRICES, ST. LOUIS.

Average Prices, East St. Louis Basis.

	1923.	1922.	1921.	1920.	1919.
Jan. ...	7.64	4.40	4.78	8.32	5.36
Feb. ...	8.16	4.40	4.29	8.62	4.83
Mar. ..	8.33	4.43	4.03	8.93	5.01
April ..	8.03	4.97	4.30	8.71	4.87
May ...	7.12	5.30	4.82	8.52	4.80
June ...	6.88	5.58	4.34	8.36	5.06
July ...	....	5.45	4.28	8.58	5.42
Aug. ...	....	5.55	4.23	8.89	5.60
Sept. ..	....	5.90	4.41	8.23	5.81
Oct.	....	6.36	4.47	7.08	6.22
Nov. ...	....	6.88	4.38	6.16	6.68
Dec. ...	....	6.99	4.40	4.75	6.96
Year ...	....	5.52	4.39	7.93	5.55

Annual Averages

1918	7.25	1913	4.26
1917	8.92	1912	4.38
1916	6.80	1911	4.31
1915	4.57	1910	4.33
1914	3.74	1909	4.10

ALUMINUM PRICES.

Open market quotations on virgin aluminum 98-99% pure, in New York.

	1923.	1922.	1921.	1920.	1919.
Jan. ...	22.75	17.74	22.86	32.00	33.10
Feb. ...	23.25	17.33	24.50	31.83	32.26
Mar. ...	24.95	17.52	23.44	31.50	29.81
Apr. ...	26.00	18.06	23.25	31.61	30.67
May ...	26.24	17.92	23.06	31.95	32.21
June ...	26.25	17.87	22.75	32.00	32.83
July ...	.....	17.87	22.62	32.00	32.57
Aug. ...	.....	17.87	20.22	32.21	32.23
Sept. ..	.....	18.26	19.02	31.44	32.50
Oct. ...	.....	20.51	17.85	29.12	32.50
Nov. ...	.....	21.66	17.50	27.80	32.50
Dec. ...	.....	22.52	17.50	23.83	32.48
Av.	.....	18.68	21.21	30.61	32.14

ALUMINUM IN JUNE

About the only movement in aluminum in June was developed through some resales of 98% to 99% virgin at 26.50c Detroit. The demand is very light but the few lots that are wanted are secured from second hands rather than from producers or importers. Late in June some resales of 99% were made at 27.00c delivered in the interior. Almost all of the arrivals here from Europe are against contracts and there being no outlet in the New York market shipments go through to Detroit and Cleveland where they either go to increase consumers' stock or are resold at slightly under the current market but at a substantial profit over original purchases. The large domestic producers, while supplying the wants of its regular customers, is reluctant to make any sales of ingots preferring to convert ingots into finished products upon the sales of which the margin of profit is much greater. Stocks in New York of virgin aluminum are based more upon resales in the central west than upon direct sales by local importers.

Importers today continue to quote 99% plus virgin at 27.00c to 27.50c and 98% to 99% at 26.50c to 27.00c delivered in the central west. The open market in New York is almost entirely nominal at 26.75c for 99% plus virgin to 27.25c

ALUMINUM, ANTIMONY, SILVER AND STERLING EXCHANGE QUOTATIONS IN JUNE

Day	Aluminum	Antimony	Silver — N. Y.	Silver — London.	Sterling Exch.*
1	26.25	7.00	.65⅝	31⅞	$4.62¾
2	.....	....	.65⅝	31⅞	....
4	26.25	6.95	.65¼	31¼	4.62½
5	26.25	6.90	.65¼	31⅜	4.62⅝
6	26.25	6.80	.65½	31⅜	4.62⅝
7	26.25	6.75	.65	31¼	4.62⅛
8	26.25	6.75	.64¾	31⅛	4.61⅝
9	.....	....	.65	31⅜	....
11	26.25	6.75	.65⅛	31⅛	4.61⅛
12	26.25	6.70	.65⅛	31⅜	4.61¼
13	26.25	6.70	.65⅛	31⅜	4.61⅛
14	26.25	6.70	.65⅛	31⅜	4.61⅛
15	26.25	6.70	.65⅛	31⅛	4.61⅛
16	.....	....	.65⅜	32 1/16	....
18	26.25	6.75	.65⅞	32 1/16	4.62
19	26.25	6.80	.65¾	32	4.62⅜
20	26.25	6.80	.65¼	31⅜	4.62⅛
21	26.25	6.85	.64¼	31 1/16	4.61⅜
22	26.25	6.95	.64½	31⅛	4.61½
23	.....	....	.64¼	31 1/16	....
25	26.25	6.95	.64⅛	31¼	4.61⅜
26	26.25	6.95	.64⅛	31¼	4.61⅜
27	26.25	6.95	.63⅞	31⅛	4.60½
28	26.25	6.95	.63⅞	31¼	4.59⅝
29	26.25	7.00	.63⅝	31¼	4.57⅛
30	.....	....	.63	31⅛	....
High ..	26.50	7.05	.65⅞	32⅛	4.62¾
Low ..	26.00	6.65	.63	31⅜	4.57⅛
Aver. .	26.25	6.84	64.84	31.56	....

and 26.00c to 26.50c for 98 to 99%. Remelted aluminum is quotable at 25.00c to 26.00c for 98% to 99% and at 23.50c to 24.50c for No. 12 alloy delivered to consumers in the interior.

Apparently European producers of ingot aluminum have a better market at home than in the United States and are making few shipments to this country outside of filling contracts. A possible international agreement among manufacturers may have some bearing upon this situation but, at any rate, there have been quite fair exports of American aluminum manufactured products, such as plates, sheets, bars, strips and rods, so far this year but it is also significant that such exports have been falling off from month to month since the beginning of the year, March exports being about half what they were in January. Credence is given to recent reports that American interests have gained control over some foreign aluminum producers but more light will be shed upon these facts when Government reports of exports during the second quarter of the year are available.

ANTIMONY IN JUNE

The market for antimony during June has been devoid of any features of remarkable interest, and the month closed with prices about where they were at its commencement, viz., 7.00c duty paid New York.

The previous decline, however, had been continued during the early part of June until the market reached 6.62½c. At this point there began to be more interest shown in antimony for import, buyers having long absented themselves during the steady recession. The buying of spot antimony was also somewhat more active at the basis reached, and as the Chinese prices had been almost constantly above the parity of the New York market, the pressure to sell was abated and prices recovered by slow degrees to the 7.00c level.

It is believed, however, that the speculative lots bought during the early part of the rise that commenced in January have not been thoroughly liquidated, and the test of the situation may come a little later when the delivery of these matures.

As previously pointed out, the rise in antimony which started the first of the year, from 6.25c, was mainly sympathetic in the general upward movement of other metals, and a good deal assisted by speculative buying. It evidently went further than actual conditions warranted, but it seems doubtful if the inflated price led to any great expansion of output in China, for the offerings from that market do not indicate the existence of heavy stocks.

ANTIMONY PRICES.

Prices for Chinese and Japanese antimony (ordinary grades) in New York.

	1923	1922	1921	1920	1919	1918
Jan.	6.81	4.45	5.22	10.53	7.59	14.23
Feb.	7.20	4.38	5.23	11.55	7.24	13.67
Mar.	8.75	4.25	5.30	10.97	6.83	13.12
April	8.38	4.88	5.15	10.45	6.82	12.52
May	7.43	5.42	5.25	9.44	7.56	12.41
June	6.84	5.13	5.06	7.93	8.37	12.99
July	....	5.08	4.68	7.43	8.81	13.18
Aug.	....	5.29	4.55	7.04	8.92	13.81
Sept.	....	6.43	4.53	7.10	8.53	13.93
Oct.	....	6.80	4.94	6.62	8.60	13.44
Nov.	....	6.54	4.66	6.05	9.06	9.10
Dec.	....	6.35	4.51	5.46	9.56	8.19
Av.	....	5.42	4.92	8.38	8.16	12.55

Annual Averages

1917	20.73	1913	7.43
1916	25.33	1912	7.68
1915	29.52	1911	7.48
1914	8.53	1910	7.27

NICKEL IN JUNE

Buying of nickel throughout June was confined largely to small lots for filling-in contracts at prices ranging from 29.00c to 32.00c a pound. Production of manufacturers in the United States and Canada continued to steadily increase and the larger shipments made against contracts resulted in relieving consumers who had been pressing for deliveries. The falling off in demand for metals generally was reflected in the nickel trade by the accumulation of some stocks in the hands of consumers who were therefore less conspicuously in the market. The International Nickel Company has been able to make considerable headway against unfilled contracts although it is still understood to be one month in arrears in shipments to customers. Other nickel manufacturers have made equal headway and are less far behind in shipments. Stocks in the hands of producers have been further reduced, but with steadily increasing output the surplus is more ample. The general tendency is toward a little easier position as current buying decreases and production increases.

QUICKSILVER IN JUNE

Mercurial manufacturers made a few supplementary purchases of quicksilver in June but most of them were well supplied by shipments against contracts. Vermillion paint manufacturers were also in the market to a moderate extent. Both of these large consumers were able to buy quicksilver at $67.00 to $67.50 per flask in the last few weeks although here and there small lots sold at $68.00 per flask. Furriers have been conspicuous by their absence from the market as usual this time of year.

The market was quite well supplied by the arrival of 1,900 flasks from Italy in the latter part of May. Some shipments were made from these arrivals against contracts and there was some current buying but there is still a surplus which has not yet been disposed of. At the same time there has been and is now no important pressure to sell.

Less was heard of the supplies afloat from Italy being available at $66.00 a flask but neither were there any large buyers and the undertone of the market was easier. Spanish mines have been closed down for the Summer with the probability of resuming operation in September. California production is light.

The London market remained practically steady throughout the month at £10 10s but recently London prices have had very little influence upon prices in this country.

At the beginning of July the local market was slow and barely steady but prices were without essential change.

PLATINUM IN JUNE

A somewhat firmer tone was developed in June as the result of an improvement in demand and a reduction in supplies. These facts were reflected in a strengthening of the market in that the official price of $116.00 an ounce, which had been shaded $2.00 a ton throughout May, was better maintained, but the asking of premiums was confined to very small lots.

The differential between soft refined and other grades increased somewhat during the month whereas the official price of $124.00 for No. 12 medium and $131 for No. 1 hard refined were shaded $2.00 a ton in May, there were few if any concessions throughout June. On the other hand, the differential between grades was advanced $1.00 to $2.00 a ton, No. 12 medium being held at $125.00 and hard at $134.00 per ounce.

Arrivals of crude platinum were still further reduced in June as compared with May and with small importations from Europe the market hardened with very little crude obtainable at $112.00 an ounce whereas in May sales had been made at $110.00 an ounce. At the close of June there were few sellers except at a further advance and quotations on any appreciable tonnage were made with great reluctance.

Palladium was well sustained but quiet throughout the month at $79.00 to $81.00 an ounce while iridium advanced again from $275.00 to $295.00 and $300.00 an ounce.

RUBBER IMPORTS AND PRICES

The following table gives the amount of rubber imported, its value in dollars and the average price per pound, according to the Trade Record of the National City Bank.

Fiscal year.	Pounds.	Value.	Avge. price per pound
1911	72,046,000	$76,245,000	$1.058
1912	110,210,000	93,013,000	.844
1913	113,384,000	90,170,000	.795
1914	131,995,000	71,220,000	.540
1915	172,068,000	83,030,000	.483
1916	267,775,000	155,045,000	.579
1917	333,374,000	189,329,000	.568
1918	389,599,000	202,800,000	.521
1919	402,472,000	157,928,000	.392
1920	632,392,000	274,156,000	.434
1921	356,975,000	114,639,000	.321
1922	568,381,000	86,751,000	.152
1923*	775,000,000	145,000,000	†.172

* Estimate. † Average price for nine months.

Federal Reserve Board reports average wages in large industries advanced 3.8% in month ended May 15th while prices declined 2%.

Steel and Metal DIGEST

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THE BUSINESS SITUATION

Contraction in the volume of business in the first half of July was even more pronounced than in May or June. To a moderate extent this decrease was offset by a slight improvement in the second half of the month. In the main, the few changes in fundamental conditions brought about no shift of sentiment. There is still reason to expect a moderate but temporary improvement in trade during the Fall but with the beginning of August there is a general disposition to be prudent. This attitude of mind was fostered by the untimely death of President Harding although a careful and sober review of the situation fails to discover any foundation for misgiving in the passing of the reigns of the administration from Harding to Coolidge.

The political career of President Coolidge has demonstrated him to be a man of courage, of intelligence and moderation with a quiet reserve which marks the man of power. His experience eminently fits in for the position of supreme executive of the nation. In serving the country as mayor of Boston and as governor of Massachusetts he demonstrated to the people his integrity and capacity. Patience and firmness are among his high qualifications. He may be less sympathetic and kindly than the ideal president he succeeds, whose gentleness, modesty and mildness in office were his strong points of success, but the Puritan simplicity of life of the present executive and his habit of independence give him a tranquil courage in the face of danger which is one of the leading requisites of a successful leader. So far as business interests depend upon political and administrative support, they are safe in his hands.

Business Interests Safe.

President Coolidge may be depended upon to support President Harding's ideas of peace and universal good-will; to take such measures as will insure the world court, and to promote co-operation with the best element of European nations. The aspiration of President Harding to create an international situation which will give assurance of future universal peace, we are confident will also be the aspiration of President Coolidge. Business developments, however, depend upon the people, not upon the executive. Right thinking and right action which mean courage and co-operation will bring the United States safely through troublous times, but we are made cautious by evidence of the growth of radical ideas in the northwest which for a time may interfere with economic developments. Fortunately, any violation of economic law automatically brings its own corrective in time. The regrettable fact is that valuable time may be lost in again teaching the people hard lessons in the school of experience.

General industrial prosperity may be reflected in the maintenance of freight car loadings well above 1,000,000 cars a week and the carriers are prepared, apparently, to take care of the unusual strain upon transportation facilities which will be made during the Fall. It is well to remember, however, that carloadings require several weeks if not months to reflect any appreciable change in trade conditions.

Low state of merchandise stocks generally may indicate industrial activity but they also reflect the indisposition of manufacturers and distributors, as well as consumers to take on additional sup-

plies in the face of anticipated declines in prices and a decrease in consumptive requirements. These remarks, of course, apply to wholesale trade. Retail business which quickly reflects high payments to wage-earners continued quite satisfactory throughout July as well as in June. Decrease in wholesale trade and industry in general last month may be partially due, of course, to seasonal losses, but the belief cannot be avoided that a wholesome spirit of conservatism is largely responsible for the recent further decline in the volume of business.

Decline in Prices.

This restricted buying was expressed in a further small decline in prices in July, 1 to 2%, following a decline of 3% in June and a drop of 5% in May. Practically all metals went to lower levels, so did cotton, woolen and silk goods. Raw cotton dropped three cents a pound in passing from the old to the new crop basis. Raw materials suffered more than finished products.

Iron and Steel.

Much lower prices for pig iron are a result of decreased consumptive needs and excessive production which was partially corrected by a radical reduction in output last month. Today blast furnaces including those of steel companies and merchant dealers are producing pig iron at a rate less than 42,000,000 tons a year including charcoal iron, against a rate of nearly 46,000,000 tons a year on July 1st.

The decrease in steel production last month was even more obvious than in pig iron, it being estimated that the industry as a whole utilized 82½% of steel ingot capacity in July against about 85% in June. Thus the July production was the smallest since November 1922, while pig iron production was the smallest since March of this year.

Nonferrous Metals.

Conditions in the copper industry were reflected more in the eagerness of some of the smaller producers to sell at concessions rather than in any substantial decrease in production but the extreme conservatism of home consumers, as shown in the light purchases of finished products as well as of unwrought copper, was of more significance. Exports were wonderfully well maintained and it is to be doubted that they would have been much greater if Germany were flourishing industrially.

The fact that the price of tin in New York was nearly ½c a pound below the London parity, each day during the week ending August 3rd, indicates the reserve of American consumers and although the July statistics showed a decrease in the world's visible supply, prices failed to recover substantially. Consumption, however, continued heavy, notwithstanding light buying in June and July, American deliveries averaging 5,300 tons a month.

The lead situation has improved somewhat in the last month and prices have advanced. Producers have but small surplus for the next few weeks but on the other hand, consumers have made very moderate purchases of the pig metal. There seems to be reason to expect an increase in consumption in the Fall, although a repetition of the large volume of trade gathered in the early months of this year is scarcely to be expected. Manufacturers of lead products detect reviving confidence among some consumers which augurs well for temporary revival, at least, in the Fall. Satistically the lead position has improved somewhat, and in the last month there has been an advance of from 50 to 70 points in the prices of various positions.

So far as zinc is concerned the promise of a month ago has not been fulfilled. Although prices advanced about 30 points in the western market in July, the higher prices prevailing late in July are not being maintained. The softening tendency now comes from the vanishing prospects for exports in the near future. Domestic demand, which is most important, has been totally absent recently. Slab zinc at the moment is selling too low in relation to the cost of production to be comfortable.

The advance of 75 to 80 points in the price of antimony was largely of speculative nature, but as prices advanced consumers became more cautious and offerings from China found very conservative buyers in the United States. Europe bought quite steadily in the Far East with an absence of offerings of resale lots which checked the advance in the Spring.

Agriculture.

As our readers are more interested in metals than in any other commodities we have made an unusual digression in reviewing the general situation in which

agricultural conditions have partially eclipsed general interest in metals, with the possible exception of steel and copper. Conditions in the farming sections have assumed a very important place in consideration of economists in recent months and especial prominence has been given to the wheat situation. It is pointed out by the Harvard Economic Service, however, that it is highly misleading to judge of the general economic position of the farming industry on the basis of wheat prices alone. Wheat represents less than 10% of the total value of the crops and dairy and live stock product and moreover, wheat and hogs are the only important agricultural commodities now substantially below last year's prices.

Cotton prices even after the sharp decline of the last fortnight are still above the level reached at the corresponding time last year. Many other agricultural products — notably corn — are substantially higher than a year ago. The Bureau of Labor Statistics' index of the price of farm products for June last, the latest figure available, was 138 against 131 in June last year. The movement of agricultural prices generally is of interest to all but there is such a thing as placing too much emphasis upon agricultural conditions, especially as a political issue. The agitation about wheat has been a disconcerting element in the economic situation in the last few weeks. The farmer cannot expect to obtain relief through legislation or through political resolutions. The agriculturalist is sufficiently intelligent to understand the organizing function of prices and the necessity to adjust output to consumptive demand. Prices established under competitive conditions constitute the only effective influence for regulating production and directing industry into the activities where it is most needed.

Wheat Situation.

It is pointed out that if the unsound scheme proposed by some Congressmen that the National government would undertake to buy wheat at a high price, the acreage instead of being reduced would be increased and exports of wheat from this country would cease while bulging warehouses would demonstrate the folly of such a movement. The Committee of Economists called by Secretary Wallace to consider foreign and domestic demand for farm products reported that European food production is greater than last year with apparently no decline in production in the rest of the world and also that Europe's purchasing power this year is likely to be less than it was last year. The committee therefore recommended a decreased acreage of wheat in the United States and reduced raising of hogs next year. The farmer must adjust his actions to meet competitive conditions and it probably will be found that wheat cannot be profitably raised on U. S. lands costing $100 to $200 an acre in competition with the grain raised on lands costing $20 to $30 an acre in Canada, Argentina and Australia.

The Department of Agriculture early in July issued a statement of the principle crops this year, average yields of same crops in five years' period, 1917-1921, yields in 1922, yields forecasted for 1923 upon basis of conditions July 1st and farm prices July 1st, 1922-1923. This survey shows that the profits from diversified farming were higher this year than they were last and that the farmers' position is far from a desperate one. The aggregate value of the principle crops on July 1st this year was $1,000,000,000 in excess of last year and the aggregate last year was nearly $2,000,000,000 in excess o the year before. That is, the outlook for diversified farming in the U. S. today is more encouraging than at any time since the demoralization of the European markets. In this connection, it is interesting to note that there has been a greater increase in the area planted to wheat in this country, since 1909, than any other farm product.

August Conditions.

The August report of the Department of Agriculture indicates a decrease of 28,000,000 bushels in this year's Winter wheat crop and also a decrease of 18,000,000 bushels in the Spring wheat yield as compared with the forecast a month ago. These figures, therefore, forecast a crop of 568,000,000 bushels of Winter wheat and 225,000,000 bushels of Spring wheat. Corn condition was improved with a forecast of 2,982,000,000 bushels. Oats, barley, tobacco, flaxseed and sugar beets also gave indications of increased production while the condition of rye, rice, hay, apples, peaches and peanuts indicated a decrease from the showing made on July 1st. In the main, the agricultural outlook is very encouraging, but it may not be doubted that some

agriculturalists, such as wheat farmers and raisers of cattle and hogs, are having serious difficulties although of their own making, but this is no excuse for them to threaten political action which would not better their own conditions but would react unfavorably upon the country as a whole.

High Wages.

One of the most discouraging developments for industrial prosperity is the fact that relative wages paid to labor have now passed the "peak period" of 1920. The National Industrial Conference Board has found that wages paid to labor in May of this year were 17 to 18% greater than living costs than they were in June, 1920. Wages have been raised much faster than living expenses. According to the Board the July 1914 taken as 100, the index number of hourly earnings in June 1920 was 248 and of weekly earnings 240, while the cost of living index number was 203. The index number of "real" hourly earnings consequently was 122 and that of "real" weekly earnings 118. From that point the cost of living declined more rapidly than earnings. The index number of hourly earnings in May 1923 was 223 and weekly earnings, 218. For the same month the cost of living index number was 160.3. In May 1923 the index of "real" hourly earnings was 139 and the "real" weekly earnings 136, indicating that in the purchasing value of his earnings the wage earner was better off in May 1923 than during the "peak" months of 1920.

Labor union labor especially, is still demanding higher wages which would seem to confirm Henry Ford's opinion that labor unions are "a great scheme for interrupting work" and "for speeding up loafing." With maximum compensation and minimum work labor is becoming a more serious handicap upon industry. As well stated by Mr. Roberts of the National City Bank the firm establishment of confidence and the stable basis for industry, the country needs lower industrial costs and more normal relations among industries. "The best way to restore equilibrium between farm products and manufactured goods is by lowering the cost of the latter. Low costs are essential to our maintenance in the world trade and to the regularity of employment. Lower transportation costs and cheaper fuel for the industries would be of general benefit and some reduction in wages to accomplish such results would be more than compensated by lower living costs and increased stability in industry."

Railroad Situation

At the moment another unsettling element is the demand for higher wages by anthracite miners, also by railroad employees together with another conservative movement developing in the textile industries for increased compensation. Recent returns from railroads indicate that June earnings will be less favorable than previously estimated. There is now a disposition to reduce estimates from $100,000,000 to $90,000,000 for the month which will mean less than 5¾% earned in June on tentative valuation of properties as compared with 6.33% in May and 6.50% in April. Even last year it is now assumed that the gain in revenues by many of the railroads was consumed by higher wages, higher fuel costs and taxes. It is significant that last year the railroads paid from revenues, which were $1,600,000,000 more than in 1917, $942,000,000 more in wages to their own employees than in 1917. They also paid $170,000,000 more for fuel in that year, not because of an increase in the amount of coal consumed but because of the higher prices prevailing and the latter were due mainly to the higher wages paid to miners. Taxes also last year were increased by $91,000,000 as compared with 1917. As a result the net operating income which was available for interest and dividends was almost $200,000,000 less in 1922 than in 1917.

Construction

The paucity of railroad orders for equipment in the last two months has been as notable as were the heavy buying of cars and locomotives in the first quarter of the year and while there has been some improvement in building construction in the last two weeks, the handicap placed upon builders, principally by high wages, makes the future outlook most uncertain. Any increase in activity under present conditions cannot be permanent. Present wage scales cannot be continued for any length of time. It would seem that next year is likely to be a period of readjustment. In the meantime, business men have reason to remain extremely conservative.

European Conditions

It would seem that the miserable state of Europe from both a political and in-

dustrial viewpoint, is largely due to a lack of co-operation among the various countries. The different nations are still working at cross purposes. There are still exhibitions of jealousy and hatred and incompetency in governments. It has been shown time and again that governments can render less industrial service to communities than private enterprises. The supreme example of government incompetency is that of Russia, but not a few other governments have been tested and found wanting. The effect of worthless paper money is most demoralizing in central Europe, but co-operation among the classes in the United States is lacking almost as much as in Europe. Under such circumstances business can scarcely escape the influence of these unfavorable elements.

The credit and banking situation in the U. S. continues to offer a sound basis for trade expansion and general prosperity. We are largely independent of other countries, that is, what they may owe us, or what they may buy from us but these advantages are of small use to us while various classes of society are arrayed against one another. The most essential element which is lacking here today as well as in Europe is co-operation. Under these conditions, it is not strange that we are having a slow contraction in the volume of business.

WARREN G. HARDING

The death of President Harding brings unaffected sorrow to the whole nation, and will be heard with deep regret throughout the world, and this universality of grief in itself is an example of the very truth which he himself propounded of the ties which unite the thought, feelings and interests of all peoples. For it removes a man who had a large vision that looked beyond the limits of narrow nationality, or rather saw that in a true sense national interests depend upon a wise co-operation in international affairs.

It may be said he sacrificed his life to bring this truth home to his people. The trip to Alaska, so fatally terminated, had as one of its chief objects the delivery of his message on the need of a world's court, which message now stands with all the potency and impressiveness of a dying injunction.

In these days of unsettlement and menace, we could ill afford to lose a leader of his character. Well balanced, sagacious, moderate and far-seeing, the public respect for him had grown steadily during his uncompleted term of office.

The untoward end demonstrates the intensity with which he had applied himself to his high duty and the unsparing strain to which he subjected himself in its discharge.

Apart from his public character, his personal qualities had a rare charm and winningness to which all who came in contact with him testified. He was in all respects an example of the best type our country has produced, and a worthy figure in the line of our great presidents.

ERSKINE ON CONDITIONS

R. M. Erskine, president of the Studebaker Corporation, made a brief statement in connection with his company's financial report for the second quarter of the year, in which there is a paragraph well worthy of thoughtful consideration by business men:

"Despite the lugubrious predictions of a prominent chart reader and prophet widely circulated quite recently, the automobile business is the livest prospect in the United States today. There is no over-production of automobiles, but there is an over-production in this country of fearful opinions and impressions by professional prophets, pessimists and critics. These destructive forces, working against the productive forces of the country, undermine confidence in business and scare some people into inaction or undue caution, which leads to unemployment. Facts and not opinions and impressions are what we need, but unfortunately, there is an acute shortage of facts."

We believe that not only every sentence, but every phrase, in this paragraph will stand the test of complete analysis and that the paragraph is full of food for intelligent and useful thought.

As to charts, we should all know by this time that while they are very useful they must be used only in the proper way. Their showing that the pendulum of business has always been swinging makes an unduly great impression on the mind. That is simply psychological. There is really nothing wonderful in the fact that the pendulum's movement has always been a round trip. The charts do not foretell either the amplitude nor the length in time of the swings, and those are the only two things we want

to know. That the pendulum makes round trips we know already and putting the thing on paper should not be permitted to hypnotize us.

As to the automobile business being "the livest prospect in the United States to-day" the American Metal Market is informed of a recent incident in high business circles. A group of very able business men were discussing the automobile industry with a view to molding the sales policy of a large company. These men considered the charges that the automobile is a fad and economically unsound, but concluded that since people want automobiles, buy them and pay for them, and the automobile makers produce efficiently, make profits and have plenty of money to pay for what they seek to buy, this company should be guided by the bald business facts confronting it and sell freely to this good customer.

Mr. Erskine would not be rendering service to business if he sweepingly denounced "fearful opinions and impressions by professional prophets, pessimits and critics" for business ought to be at all times strong enough to bear the test of any criticism that man's ingenuity can devise. If the criticism is untrue it can be rejected if all business men are intelligent enough. Unfortunately that is not precisely the case. Mr. Erskine explains by saying "which leads to unemployment." Now, that is the soundest kind of economics. We were on a fearfully unsound basis three years ago. There had been a loud cry for "more production" for our salvation, and where there was enough production speculators hoarded and made it appear that there was not. Then we got paid back, which served us precisely right. The outstanding phrase is "which leads to unemployment." We want employment for two complete and sufficient reasons, that employment means production, and it is goods, comforts, luxuries, that we want because they are prosperity, and that employment means wages and profits, and wages and profits are buying power. Without buying power we cannot sell and we are therefore wasting if we produce.

As to there being "an acute shortage of facts" all who scrutinize what they hear know that. We should have more facts. Then analysis would be easier and more trustworthy.

SOME HUSKY INDEPENDENTS

The obsorption of Midvale and Lackawanna by Bethlehem and of Brier Hill and Steel & Tube by Youngstown Sheet & Tube makes quite a change in the alignment of the "independents", which by the usage of 22 years means all the steel producers in the United States outside of the United States Steel Corporation. At times the term has seemed a misnomer, some of the independents claiming that they were dependents rather than independents. At such times the Steel Corporation would not admit the force of the contention, although it could not deny that it occupied much the position of "holding the umbrella."

However, it may have been in the old days, before the war, the outside steel companies have been acting more independently of late than formerly. In 1920 they advanced their prices far above those of the Steel Corporation, something they never attempted before the war. Whether that represented a power not formerly existing, or a policy not formerly existing need not be argued, the fact being the important thing. Again in such price advances of 1917 and of 1922 and 1923 which the Steel Corporation made the independents furnished the lead in the majority of cases. That again, is something that did not occur before the war. Perhaps it would be interesting to discuss why there is this new style, but the fact is important that there is a new style.

While the alignment of capabilities among the so-called independents has been changed by the recent mergers, there is still no small group of independents that can at all measure up to the Steel Corporation in size. The change in sequence of size of independents is interesting. Years ago, when the Jones & Laughlin Steel Company completed its Aliquippa works, it stood at the head of the list among the independents by the usual measurement, that of steel ingot capacity. This company has always been a sort of private enterprise or family affair, and it has grown purely by construction, there being no absorption except the purchase of the Soho works of the Moorhead-McCleane Company, a relatively small affair. The Jones & Laughlin enterprises were started a few years ago before the Carnegie business, and thus have had ample time in which to grow.

The alignment now is that the Bethlehem Steel Corporation stands easily highest among the independents, Youngstown Sheet & Tube Company being a far third and Jones & Laughlin Steel Corporation a close fourth. Rated capacities in ingots have always exceeded the tonnage the steel industry was actually able to produce, the difference being on an average between 5 and 10%, but of course much more when the steel industry had particular handicaps, such as transportation difficulty. Taking probable commercial output rather than rated capacity, and using figures that are rough but easily remembered, the Steel Corporation may be set at a probable output of say 22,000,000 tons of steel ingots, Bethlehem at 7,500,000 tons and Youngstown Sheet & Tube Company and Jones & Laughlin Steel Corporation at, respectively, a little above and a little below 2,500,000 tons.

Thus, roughly speaking, Bethlehem is about one-third as large as the Steel Corporation and about three times as large as either of the next two concerns, while the three put together run somewhat more than half as much tonnage as the Steel Corporation. It must be admitted that ingot capacity falls far short of being a perfect criterion, but it is the only measuring stick available. Among these four interests there are some that carry their tonnage to a higher degree of finish than others, and start their operations more fully from the mineral in the ground, so that measured by value product the relationships are somewhat different from those shown by ingot tonnages.

SMOOTH MOVEMENT OF COAL

The Geological Survey reports the production of bituminous coal in the first 171 working days of this year, or almost through July, at 303,628,000 net tons, and makes its usual comparison with the same number of working days in, respectively, years of activity and years of depression, the figures for the first 171 working days of the years named being as follows:

Activity.		Depression.	
1917 ..	305,529,000	1919 ..	247,051,000
1918 ..	319,047,000	1921 ..	222,302,000
1920 ..	295,130,000	1922 ..	199,343,000

The production thus far this year stands less than one per cent. below the average of the three biggest coal years of the past six.

These figures, presented by the Geological Survey without comment, are very interesting. One must conclude that there has been a very good coal supply, but the market has shown that. The supply has been easily equal to the requirements, or coal would not be selling as cheaply as it is. Prices on the whole have been running, for four months past, at less than the operators claim is the cost, all items included.

An interesting point in the trend is that while production showed a slight increase in July over June, though there had been a little peak in production late in May, the detailed report issued weekly showing by districts the assigned causes of lost production has shown some further swing from "transportation disability" to "no market." It will be understood that by reason of the system necessarily used in reporting there can be sudden swings from one cause to another. If a mine is operating at any rate, no matter what, but say 60% for illustration, has more orders than it can fill and is given all the cars it can load, but could employ a few more men than it has, then the assigned cause of the 40% deficiency in production is "labor shortage." If the cars are a few short of those the men could load, then the 40% is "transportation disability." Or it may be a case of "no market" when a few additional orders would uncover either a labor shortage or a car shortage. Each mine or group of mines reports for itself, and thus a district may show some loss of production by each of several causes.

The movements from week to week are complicated, but in general it can be said that in recent weeks there has been a swing from "transportation disability" to "no market" despite the fact that production, viewed at long range, has not decreased.

There are two salient features in this, that the railroads have been doing remarkably well in moving coal and supplying cars, much better than the average of the predictions ran, and that despite the very high wages the miners are showing some willingness to work. Of course they are not averaging any-

thing like full time employment, but the wage rates are so high that even with indifferent employment, in hours per week, the incomes run very high.

Recently the Geological Survey arrived at the conclusion that commercial stocks of bituminous coal June 1st were not under 40,000,000 tons, this being nearly two-thirds of the record high stocks, on Armistice Day and on April 1, 1922. A report is now being compiled for July 1st and it will no doubt show that an increase occurred during June. The coal market has given its own evidence, in the past four months, of there being stocking, for prices have moved but slightly, suggesting plainly that large buyers were purchasing on soft spots and curtailing purchases when the market tried to advance on them.

COAL AS A PUBLIC UTILITY.

"In a report at once dignified, comprehensive and conclusive, and of a quality to be expected from the character of the men who compose it, the United States Coal Commission recommends definitely that the anthracite coal industry be henceforth treated as a public utility," says the **Electrical World.** "There is also an indication that their preliminary report on anthracite presages a similar conclusion in the bituminous field. The direct interest of the electrical industry in the coal industry is largely confined to the assurance of an adequate and certain supply of coal at prices consistent with good business. And this interest, of course, is principally in the bituminous supply. But indirectly the fact that the coal industry is actually to be a public utility is of sufficient interest to existing public utilities to make a study of the situation of value. The report includes a measure of indictment of both operator and miner. There is quite evident, in fact emphatically evident, the assumption as a matter of course that whatever is done must be done in the public interest and the conviction that affairs of the industry have so far been handled in such a way that government must step in and supervise. On this point coal men have not been without advice from the operators of present public utilities who have learned by experience that the way to avoid government interference is to anticipate the demands of the public. As J. W. Gleed recently pointed out at Oklahoma City, those in charge of any business have its destiny in their own control insofar as they show themselves able to exercise an intelligent control.

"But more important than that coal should be declared a public utility is the fact that, declaring it a public utility, the coal commission, with all the facts in its possession, goes on record as strongly against government ownership and operation. It rightly concludes that the greatest success will be attained only through private operation—guided and guarded, on account of the nature of the business, by some governmental agency. And it should be well and gratefully noted that the commission has carefully differentiated between proper supervision or regulation on the one hand and management, which is an improper function, on the other.

"Three times now in the past four years has some government agency investigated a public utility business and, with only the public interest in view, concluded that such business is best conducted by private agencies with suitable government supervision. The Esch-Cummins act, the result of Congressional deliberation over the railroad situation, is one example; the Federal Electric Railways Commission's investigation into and report on the electric railway situation is a second, and the Coal Commission's report is the third. It is a fitting tribute to the ability and character of public utility management that all investigations and analyses based on actual fact lead to this conclusion."

SLIGHT INCREASE IN FAILURES.

There were 1,406 failures reported to Bradstreet's Journal for the month of July, an increase of 2% over June, but a decrease of 10.7% from July a year ago and of 5.7% from July, 1921. Compared with July, 1920, failures are one and a half times more numerous, and compared with the month of July, 1919, when failures were the lightest in any month for a third of a century, failures this year in July are two and a half times more numerous. Coming back to more recent comparisons, it may be said that failures daily in July totaled 54, whereas in June they numbered 53 daily for each business day in the month, as against 60 failures a day in July a year ago.

Liabilities for July totaled $36,584,033, a decrease of 30% from June and of 15% from July a year ago. July liabilities are only about half those of July, 1921, and 27% less than in July, 1920.

U. S. COPPER STATISTICS FOR 1922-1923

Final statistics of the production of copper in the United States in 1921 and 1922 are given by the Department of the Interior in the following statement, compiled by H. A. C. Jenison of the Geological Survey.

Summary of Features of the Copper Industry in the U. S. in 1921 and 1922.

	1921. Pounds.	1922. Pounds.
Production of copper:		
Smelter output	505,586,098	950,285,947
Mine production	466,190,853	(a)
Refinery production of new copper:		
Electrolytic	506,532,984	766,944,836
Lake	100,918,001	122,545,126
Casting and pig	1,963,271	15,180,723
Total domestic	609,414,256	904,670,685
Total domestic and foreign	1,020,027,096	1,358,659,101
Total new and old copper	1,455,000,000	(a)
Imports (unmanufactured)	350,472,611	541,013,220
Exports of metallic copper (b)	628,415,714	742,755,957

(a) Figures not yet available. (b) Total exports of copper, exclusive of ore concentrates and composition metal.

Refined Copper.

The total production of new refined copper in 1922 was 1,359,000,000 pounds. an increase of 339,000,000 pounds over that in 1921.

Primary and Secondary Copper Produced by Regular Refining Plants and Imported 1921-1922 In Pounds.

Primary: Domestic a—	1921.	1922.
Electrolytic	506,532,984	766,944,836
Lake	100,918,001	122,545,126
Casting	1,740,393	15,180,723
Pig and best select	222,878	.....
	609,414,256	904,670,685
Foreign a—		
Electrolytic	b 405,337,490	b 448,784,819
Casting and best select	5,275,350	5,203,597
	1,020,027,096	1,358,659,101
Secondary:		
Electrolytic	82,017,382	100,792,685
Casting	24,467,951	45,217,857
	106,485,333	146,010,542
Total output	1,126,512,429	1,504,669,643

(a) The separation of refined copper into metal of domestic and foreign origin is only approximate, as an accurate separation at this stage of manufacture is not possible. (b) Includes refined copper imported.

The reports from plants that treat secondary material exclusively are incomplete at this date. A statement of the secondary production will be published as the figures are available.

In addition to their output of metallic copper the regular refining companies produced bluestone (hydrous copper sulphate) having a copper content of 8,508,000 pounds.

Stocks.

Returns from all producing companies show that their stocks of electrolytic Lake, casting, and pig copper on hand and in process of refining at the beginning of the year was as follows: (See next page).

Stocks of Copper January 1, 1921, 1922, and 1923, in Pounds.

Year	Refined copper.	Blister and material in process of refining
1921	659,000,000	465,000,000
1922	459,000,000	283,000,000
1923	216,000,000	361,000,000

The second column above does not include copper in stocks at foreign smelters or in transit from foreign smelters to refineries in the United States.

Consumption.

The new refined copper withdrawn from the total year's supply on domestic account in the United States in 1922 and the method employed in determining it are shown in the following table, which does not include stocks of copper held by consumers.

New Refined Copper Withdrawn from Total Year's Supply on Domestic Account (a) 1921-1922, in Pounds.

	1921.	1922.
Total supply of new copper	1,020,027,096	1,358,659,101
Stocks at beginning of year	659,000,000	459,000,000
Total available supply	1,679,027,096	1,817,659,101
Copper exported (b)	609,038,352	705,025,268
Stocks at end of the year	459,000,000	216,000,000
Total	1,068,038,352	921,025,268
Withdrawn on domestic account	610,988,744	896,633,833

(a) Formerly called "Apparent domestic consumption."

(b) Includes unrefined black, blister and converter copper (bars, pigs, or other forms) and refined in ingots, bars, rods, or other forms.

MINE PRODUCTION OF ZINC

The following table showing the mine production of zinc in the United States during the past six years was compiled by the U. S. Geological Survey. It shows the great growth of the Oklahoma district on the one hand and the falling off in nearly all of the other fields.

(Tons of 2,000 lbs.)

State	1917	1918	1919	1920	1921	1922
Arizona	10,447	1,135	859	729	.....	105
Arkansas	6,691	951	189	329	15	134
California	5,436	2,781	236	583	529	1,808
Colorado	60,158	44,567	18,610	24,395	1,180	11,477
Idaho	39,927	22,581	7,997	13,966	17	2,055
Illinois	4,267	3,792	6,788	4,720	2,426	3,124
Iowa	18	.....	.....	.....	.....	.....
Kansas	20,249	30,197	47,636	61,073	36,994	56,225
Kentucky	751	315	36	9	220	142
Missouri	132,918	55,992	31,540	24,509	10,845	16,171
Montana	93,130	104,629	84,382	92,169	11,638	59,535
Nevada	11,154	8,362	4,502	5,349	35	1,309
New Hampshire	45	14	.....	.....	.....	.....
New Jersey	120,846	98,470	92,912	77,371	56,447	73,657
New Mexico	15,100	12,025	3,797	5,007	114	2,250
New York	5,192	3,776	5,120	5,654	1,572	4,816
Oklahoma	85,835	161,401	178,410	219,727	121,372	209,682
Tennessee	28,498	21,071	23,247	19,217	9,692	15,568
Texas	11	.....	.....	.....	.....	.....
Utah	10,643	9,200	2,216	4,079	35	2,560
Virginia	1,703	951	.....	.....	.....	.....
Washington	598	19	.....	213	225	614
Wisconsin	59,742	50,014	40,765	27,285	3,390	10,952
	713,359	632,243	549,242	586,384	256,746	472,184

THE OBSERVER'S CORNER

The phrase "exaggerated ego" is used in a special sense in psychiatry, but the Observer wishes to use it in a general, not a technical sense. One of Kipling's stories, of an ape killing his master's wife from jealousy, refers to the ape as having "too much ego in his cosmos" and it is in that more common sense that the expression is used here. Perhaps more of the ills of humanity arise from exaggerated ego than from any other mental fault.

Possibly the psychologists will conclude some day that the reason there is so much exaggerated ego is that the sense of ego is of relatively so recent origin in the mind that there has not been time for it to get into proper proportion. Let us hope not, for if so it would be quite a good while before the correct development would be completed.

In support of the contention that exaggerated ego is responsible for much of the trouble society has, consider the weakness of the general run of men in economics. When you come to think, of it, the working of economic law is everywhere visible, all the time. Why is not a general grasp of economic law very common? Men do observe many things, and one would think they would develop some knowledge of the laws of economics from their own observation. Yet a rough classification would be that extremely few men develop a sense of economics of their own accord, a moderate few can be taught economics and a great many cannot even be taught.

Exaggerated ego accounts for this. Economics' teaches among other things what is good for the whole body of society but the man with exaggerated ego does not think in such terms. He thinks of what is good for himself and if he tries to generalize at all he thinks of other people in the same way as he thinks of himself. If he is a glazier he has come to the conclusion that the more windows get broken the better his business will be. If he broadens out he thinks smoke is a good thing for that will make business for the painter. Bacteria are a blessing to the refrigerator trade and earthquakes are one of Nature's greatest blessings for they "make work" for nearly everybody.

If the Observer is thought to have made himself ridiculous by talking thus, the only rejoinder offered is to inquire how many people there were who thought that as a result of the late war nearly everybody would have more things and be better off?

Nobody will deny that exaggerated ego has been responsible for a great many business failures. The manufacturer sees his competitors underselling him, is confident that he has the lowest costs, necessarily so because he is such a bright man, and sits patiently by until his competitors shall have gone bankrupt, but he goes that way himself instead. Or he merges the reputation of his goods and his own egotism and is confident that the reputation will carry him, without advertising and without salesmanship.

In many large business undertakings one of the chief things needed for success is co-operation among the individuals making up the organization. Practical experience has shown that the chief barrier to co-operation is exaggerated ego, each employe thinking his work is more important than the work of others and holding that the others should "play into his hand," so to speak.

Extensive contact with one's fellow men together with wide study are good cures for exaggerated ego. A strong suggestion as to the truth of this is found in the development of children. The child on the development of consciousness with no sense of the greatness of the world naturally has too much ego. Gradually the cure is effected. The small boy, successful in tormenting the kitten, acquires the notion that he is so constituted that he can do any amount of tormenting, but finally the boy next door, or perhaps it takes a boy several doors away, administers a sound drubbing, and then the appraisal of relationship changes.

U. S. STEEL CORPORATION EARNINGS IN SECOND QUARTER OF 1923

Total earnings of the United States Steel Corporation in the second quarter of 1923, before charging interest on subsidiary company bonds and after deducting all expenses incidental to operations and estimated taxes, were $49,940,030, as reported officially. After deducting interest on subsidiary company bonds the balance of earnings was $47,858,181. The net income after deducting charges for depreciation and for sinking fund, was $34,828,384, and the balance, after deducting interest on United States Steel Corporation bonds, was $29,864,112. After allowing for dividends on common and preferred stock there was a balance of $17,205,412. Of this amount $10,000,000 was reserved for improvements and betterments, leaving the surplus for the quarter $7,205,412.

Second Quarter 1923.

The earnings for the quarter were surprisingly large and were the heaviest of any quarter since the third quarter of 1920. In the second quarter of this year the subsidiary companies of the corporation shipped approximately 4,100,000 tons of rolled products and earnings were $47,858,181 indicating an income of $11.67 a ton. In April, when the earnings were $14,299,988, shipments were 1,300,000 tons, indicating earnings at the rate of $11.08 a ton. In May when earnings were $17,698,675, shipments had increased to 1,450,000 tons, accordingly earnings were $12.21 a ton. In June when earnings were $15,759,518, shipments were 1,350,000 tons approximately, indicating earnings at the rate of $11.67 a ton.

First Quarter.

In the first quarter of this year when earnings amounted to $34,780,069, only 3,925,000 tons of rolled products were shipped, indicating earnings at the rate of $8.86 a ton. January earnings were at the rate of $8.13 a ton based upon shipments of 1,300,000 tons. In February when 1,185,000 tons were shipped earnings were at the rate of $8.04 a ton. In March, shipments were approximately 1,440,000 tons and earnings were at the rate of a little over $10.20 a ton.

Second Quarter 1922.

In the quarter ending June 30th, 1922, total shipments of all products were 3,190,000 tons of which 990,000 tons were shipped in April, 1,100,000 tons in May and 1,100,000 tons in June. Based upon these shipments, earnings in that quarter were at the rate of $8.56 a ton, the April earnings being at the rate of $7.83 a ton, May earnings, $8.03 a ton, and June earnings, $9.74 a ton.

Plant Operations.

In the second quarter of this year, plant operations of the corporation, averaged a little over 94% of capacity, the average in April being 94%, in May 96% and in June 92½%. In the first quarter of this year, 1923, plant operations averaged 90.4%. The operations in January averaging 88%, in February 89.8% and in March 93.6%. In the first half of this year plant operations averaged 92.28%.

In the second quarter of 1922, plant operations averaged about 74%, rising from 71.9% in April to 74.2% in May and 77% in June. In the first half of 1922, plant operations averaged 65.75% of full capacity.

In July plant operations of the various subsidiary companies averaged scarcely 85% of capacity because of the drop in the first week of the month to about 68% of capacity when advantage was taken of Independence Day to make the usual semi-annual repairs. Since that time, however, operations have gradually increased and today they are very close to 91% of capacity.

Earnings in Quarter ended June 30, 1923.

	Before charging int. on sub. Co. bonds.	Less int. on sub. Co. bonds.	Bal. of earnings.
June	$16,450,923	$691,405	$15,759,508
May	18,392,070	693,395	17,698,675
April	15,097,037	697,049	14,399,988
Second quar.	$49,940,030	$2,081,849	$47,858,181
Quarter ended March 31, 1923.			
March	$15,389,636	$697,989	$14,691,647
Feb.	10,225,251	698,070	9,527,181
Jan.	11,259,788	698,547	10,561,241
First quar.	$36,874,675	$2,094,606	$34,780,069
First half	$86,814,705	$4,176,455	$82,638,250

The following table gives the net earnings by months for the last four quarters as compared with the two preceding years:

	1923.	1922.	1921.
June	$15,759,518	$10,712,004	$15,759,741
May	17,698,675	8,821,887	15,205,518
April	14,399,988	7,750,054	12,190,446
Second quar.	$47,858,181	$27,286,945	$43,155,705
Mar.	$14,691,647	$8,505,166	$7,741,352
Feb.	9,527,181	6,180,685	10,157,896
Jan.	10,561,241	4,654,134	14,387,474
First quar.	$34,780,069	$19,339,985	$32,286,722
Total first half	$82,638,250	$46,626,930	$54,178,738

	1922.	1921.	1920.
Dec.	$9,322,687	$4,967,237	$12,009,500
Nov.	9,603,351	6,440,288	13,092,919
Oct.	8,566,354	8,204,358	16,775,443
Fourth quar.	$27,552,392	$19,612,033	$48,877,962

	1922.	1921.	1920.
Sept.	7,019,590	7,257,687	16,174,322
Aug.	10,615,085	6,502,796	15,440,416
July	9,833,664	5,157,395	16,436,802
Third quar.	$27,468,339	$18,918,058	$48,051,540

Comparison of Earnings.

Following is a comparison of the June quarter with that of March 1923 and June 1923:

	June 30, 1923.	March 31, 1923.	June 30, 1922.
Net earn.	$47,858,181	$34,780,069	$27,286,945
Res. skg. fd. etc.	13,029,797	12,252,744	11,067,432
Bal.	$34,828,384	$22,527,325	$16,219,513
Int. U.S. St'l bds.	4,964,272	5,009,274	5,023,158
Bal.	$29,864,112	$17,518,051	$11,196,355
Pfd. divs.	6,304,919	6,304,919	6,304,919
Com. "	3,353,781	6,353,781	6,353,781
Improv.	10,000,000	.....	.....
Surplus	$7,205,412	$4,859,351	*$1,462,345

* Deficit.

Comparative Earnings in First Half.

	1923.	1922.	1921.
Net earn.	$82,638,250	$46,626,930	$54,178,738
Int. etc.	35,256,087	29,521,343	30,616,101
Balance divs.	$47,382,163	$17,105,587	$23,562,637
Pfd. div.	12,609,838	12,609,838	12,609,838
Balance com.	34,772,325	4,495,749	10,952,799
Com.dv.	12,707,562	12,707,562	12,707,562
Surp.	$22,064,763	*$8,211,813	*$1,754,763
Imps. etc.	10,000,000	.....	.....
Surp.	$12,064,763	*$8,211,813	*$1,754,763

* Deficit.

Panama Canal Traffic Tripled—Traffic in the Panama canal has increased from 4,000,000 tons in 1915 to more than 11,000,000 tons last year, and will almost certainly exceed 13,000,000 tons in 1923, as told to a gathering of the New York section of the American Society of Civil Engineers by J. J. Morrow, governor of the canal. He said: "The lockage capacity is 50,000,000 net tons of shipping per annum, and it is estimated that the traffic will not reach this volume till 1955. When it does more locks can be added, which can be paid for out of the profits. In January, 1921, in two days' time there were passed from ocean to ocean 43 vessels, some of them battleships of heaviest draft and beam. This shows what can be done in an emergency with the normal operating force, designed for an average of about eight vessels per day. Since then traffic has grown to an average of ten ships per day, each of the last three months having established successfully new records for transits and for tolls. Expenses for operation, maintenance and the manifold tasks of governmental administration call for just about half as much money as is being turned into the United States treasury. The canal is almost paying interest even on the business investment and amortization on the same."—**American Industries.**

TOPICAL TALKS ON IRON

CXXIII- Flats

A term sometimes used of late to cover certain finished steel products is "flats." The term has no standing in the market, since no one would sell a tonnage of "flats" at a given base price, subject to extras, and allow the buyer to specify as he chose.

The term when used at all is used to designate a group of four products bars, bands, hoops and strips. Some use the term to designate only the last three but since the merchant bar card does carry an item "flats" and the band and hoop strip cards do not use the word it seems fair to include bars as contributing to the general class of material.

In commerce, in the actual buying and selling and delivering of material, the distinctions between the four classes of flat steel are made by the cards of extras, the regular system of quoting prices being of course to name a base price, to which the extras of a stated card shall apply. The cards of course have been carefully arranged not to overlap, as between bars and bands and bands and hoops.

The merchant bar card runs down to and includes ¼-inch in thickness. The band card begins at 3/16-inch in thickness. By a common trade practice any odd size is classified not with the regular size nearest it but with the adjacent size that is the more difficult to roll, hence any material between ¼ and 3/16 inch would be a band.

The technical distinction, as to thickness, must necessarily be followed rigidly. Accordingly, a piece of steel 3/16 inch thick and ⅜-inch wide, or almost square, is a band, while a piece of ¼-inch thick and 6 inches wide is a bar.

While bands are spoken of separately they have never really stood by themselves. Prior to May, 1918, when the Government was controlling steel prices bands were called bands but were on the bar card and the base price was the same for bars and bands, the bands merely carrying greater extras. In periods of low cost production the extras were profitable, hence sometimes a mill would sell bands at a lower base price than bars. In May, 1918, bands were transferred from the bar card to the hoop card, so that they would take the hoop base instead of the bar base. Costs were so high that manufacturers complained they were placed at a disadvantage on bands, and the matter was adjusted by transferring bands. At that time the hoop base was $12.00 a net ton above the bar base, so that the transfer would have effected an advance of that amount in the selling price, but in the transfer the band extras were reduced $4.00 a ton so that the real advance was $8.00.

The dividing line between bands and hoops is between 12 and 13 gauge, but the card is continuous, no distinction being drawn at the point.

There is no very precise difference between a hoop and a strip, meaning of course a hot rolled strip, and there is a separate class of material, cold rolled strip, but the classes of material really run quite different, hoops being relatively narrow and strips relatively wide. There are limitations in hot rolling, and the wider the material the thicker it is at the point where further reducton becomes impractical. Hoops will run to 23 gauge or lighter, while strips generally stop at 14 gauge in which widths up to say 15 inches are made. There have been attempts to roll 15 gauge in wide sizes but the mills have not found such business attractive. If one wants thinner material than can be furnished in strips or wider material than can be furnished in hoops he must use sheets.

By cold rolling strips much thinner material can be produced, and colled rolled strips are made so thin that they can be torn like paper. The extras on very thin material are high, more than doubling the net price. The base price on cold rolled strips is on one-tenth inch and thicker.

Originally, one may take it, hoops were used for barrels and bands were used for larger articles of the same category, including wooden tanks. Strips, a relatively new material in steel, were used for manufacturing or fabricating purposes. Uses of steel have so multiplied that the users respectively of bands, hoops

and strips do not fall into separate classifications and the propriety of designating the materials separately has very largely disappeared. Nor is there any very precise difference definable between the processes of manufacture or the rolling equipment used. Hence it has been well argued by some leading men in the trade that all three names, bands, hoops, and strips be dropped, and the single word "flats" be substituted to cover all. Usage is sometimes hard to overcome, as witness the survival of the use of the word "shafting" to mean what is properly called "cold finished bars," and perhaps one difficulty in the way of the proposed change would be that the word "flats" is used in the merchant bar card and it would be hard to get it out.

LOW TESTS IN BRITISH CAST IRON

"In studying the tentative specifications for cast iron proposed by the Institution of British Foundrymen a number of questions arise," says **The Foundry.** "Probably the most striking of these is the low tensile requirements of the specifications when the high strength of British cast iron as reported by F. J. Cook, in his exchange paper read before the Rochester convention of the American Foundrymen's association two years ago, is considered. The fact that tensile strengths are so much lower that what seems to be the commonly accepted standards for British cast iron would indicate that instead of making the foundries which are out of line with British standards toe the mark and produce iron of high quality, the specifications are lowered to make it possible for even the poorest foundrymen to make iron to meet them. Certainly this will not help the British cast iron industry as a whole. The advantage of setting high standards has been shown by the American Malleable Castings association which raised the requirements of its specifications as high as it was deemed commercially possible, and as a majority of malleable iron foundries showed their ability to make stronger iron the requirements were increased. In drawing up the specifications for high test cast iron the American Society for Testing Materials set a tensile strength figure which is considered low by some foundrymen in this country; but even this figure of 28,000 pounds per square inch is considerably higher than the strength of 24,640 pounds per square inch required by the British specifications on the 1.20-inch diameter bar, which is approximately the diameter of the arbitration test bar used in this country. To make a low requirement like this when, to quote Mr. Cook, a "tensile test going a little beyond 31,360 pounds . . . . would be considered quite mediocre" is hardly justice to those foundrymen making a superior quality of iron.

The difficulty in satisfactorily drawing up specifications for cast iron is emphasized by the radical difference between the British and the American idea in regard to the test bar. While the American specifications require only one size test bar for all weights of castings, three different diameters are demanded by the British specifications. Of course, the latter seems the most reasonable method of securing a correct estimate of the strength of the iron in the casting. The only objection is the increased expense in making and testing the larger bars and the difficulty of directly comparing the results secured from the different test bars. Evidently those drawing up the American specifications considered that the benefits to be derived from having several different sized bars to represent the castings according to their weights do not compensate for the difficulties to be encountered in having a number of sizes of test bars. This is a point which will have to be determined as the first step in deciding upon an international test bar, and the international test bar is the starting point of international specifications for gray iron castings, which is of such great importance to firms doing an international business.

"It is interesting to note that the British foundrymen decided the question of including chemical requirements by directly stating that the amount of any element other than phosphorus shall not be specified, and only the upper limit for phosphorus may be included. Evidently the detrimental effect of phosphorus on the machining properties of iron are better appreciated by the British than by founders in this country."

TECHNICAL AND COMMERCIAL ABSTRACTS

The Economic and Political Importance of Power—The attention at present devoted to this subject indicates that engineers and statesmen have awakened to the importance of economic power development, not only in this country but throughout the world. People have come to realize that where there is no power there is no industry worth talking about. Labor leaders who were fearful that the substitution of power would throw large numbers of men out of employment have lived to see that it has no such effect, but that, on the contrary, because of the application of power working and living conditions have become better, the laborer receives a higher wage, and instead of a surplus an actual shortage of labor exists, at least so far as this country is concerned. Adversity is a great teacher, and out of the welter of fire and blood France and Italy have merged with one economic fact clearly defined; that is, the necessity of the development of the water-power resources of the respective nations and the substitution of hydro-electric energy, now in large part running to waste, for expensive power produced from imported coal. The demand for power seems insatiable, and it is wise and prudent that those engaged in the business of supplying it should know exactly what the resources are. The World Power Conference scheduled to be held in London next year indicates very clearly how important the question of power supply is becoming throughout the world.—**Electrical World.**

IRON AND STEEL.

Rustless Iron Being Made in Sweden—Announcement is made that rustless iron is being produced in Sweden by a process invented by a Swedish metallurgist, which it is said brings the cost of the finished product down approximately to that of ordinary commercial mild steel when account is taken of the exceptional strength and durability of the new material, whereby lighter gauges can be used, and of the saving of the expense of rust-resisting coverings. The process is electrical, and the iron is claimed to be impervious to rust and corrosion by means of acid and corrosive liquids, and to be an economical substitute for mild steel. The name of the company is given as the Ferrolegeringer A. B., Trolhatten, Sweden. This company is stated to have been manufacturing ferrochromium and other alloys since 1913. —**Iron Age.**

Fluorspar in the Western States—A paper discussing the fluorspar resources of the western states has just been issued by the Bureau of Mines. An extenive investigation was undertaken by the author to determine the possibility of securing supplies of fluorspar suitable for steel mill purposes from the western part of the country. Only a small tonnage of fluorspar suitable for fluxing purposes is available. The deposits in general are small, and many of them are impure, making expensive treatment necessary. The small Illinois-Kentucky district will continue to be the main domestic source of supply for the demand, which in normal times exceeds 200,000 tons yearly.—**Blast Furnace nd Steel Plant.**

The Coming of the Short Day—This all-important topic was editorially commented on by the **Iron Age** in its July 19th issue, giving the problems to be solved, the difficulties to be overcome, as well as the advantages to be achieved, and in closing says: "But with all its difficulties and consequences, for good and for ill, the coming in of the shorter day in iron and steel making is close at hand. Public sentiment, partly informed and largely uninformed, has called for it, regardless of economic consequences, but convinced apparently that the change will bring great social benefits. Steel workers and the tens of thousands of men and women who own the steel plants of the country may find the mandate of the public hard to bear, but the leaders of the industry have set their hands to the task, and there will be no turning back."

Steel Castings Pass Million Mark—Recovery and increased production are registered in the steel castings branch of the foundry industry, as attested by the figures for the total output in 1922. Although the entire industry suffered severely from the depression, it is apparent that steel foundries were the

hardest hit of any castings manufacturers during the slump in 1920—1921. The entire output for 1921 was only 559,713 tons, the lowest total reported since 1909. The complete and satisfactory recovery is indicated by the 1922 production of 1,034,508 tons, which is greater than any year since the outbreak of the European war. — **The Foundry.**

Neumann Bands in Steel—F. B. Foley, metallurgist of the Bureau of Mines, is investigating the occurrence of Neumann bands in specimens of mild steel subjected to impact by explosion. The discs of steel were placed on a lead block at varying distances from 50 gm. of 60% straight nitroglycerine dynamite, at the explosives laboratory of the Bureau of Mines at Pittsburgh, and suspended vertically above the block and specimen. The effect of the explosion was to cup the steel disc and make a depression in the lead blocks; this effect grew less as the distance was increased. Microscopic examination at Rolla, Mo., showed that there was a decrease in Neumann bands as the distances between specimens and the explosive were increased. Photomicrographs have been taken. The specimens are now being prepared for running solubility tests in weak acids, in an attempt to discover whether or not the occurrence of Neumann bands affects the solubility of the metal.—**Iron Age.**

The Goulais Iron Ore Deposit—"A press report to the effect that a party of prospective investors, accompanied by J. D. Jones, general manager of the Algoma Steel Corporation, have recently inspected the deposit of iron ore near mile 60 on the Algoma Central Railway, draws attention to the strategic position and potential importance of this deposit," says **Iron and Steel of Canada.** "It is a magnetic iron range, a few miles only from the railway, sixty miles north of Sault Ste. Marie. Its future as a possible important producer of iron ore was realized only three years ago, when it was staked and examined in a preliminary way. The first superficial examination has disclosed a vast amount of siliceous magnetite, uniform in quality, free from deleterious impurities, and amenable to modern processes of concentration. This deposit is in an unusually favorable position to supply the blast furnaces at Sault Ste. Marie. A single railway haul of sixty miles direct from mine to furnace is much less than the transportation expense to which the present supply of ore is subjected. The necessary investment in a spur line is slight in comparison with the object to be attained. The ore deposit is capable of producing a large annual tonnage for a century or more."

Electric Steel in 1922.—While no records were broken by American electric steel furnaces in 1922, the statistics for the year emphasize more interesting trends. A year ago it was pointed out that 1921 was the first year of marked increase both in the proportion of steel castings made electrically and in the quantity of electric alloy castings. The 1922 record practically duplicates the showing of 1921. In 1911 or twelve years ago, electric steel castings were only 1.2% of the total. The 1922 output of 154,982 tons was next to the largest ever made. Not only is the electric furnace likely to maintain its place in the foundry industry, but another forward step may be looked for when larger furnaces and cheaper electricity prepare the way for larger outputs of high-grade rolled products.—**Iron Age.**

RAILROADING.

Briton's Caustic Comment on American Train Service—A correspondent of the **Railway Gazette** (London), in writing of his experiences on railroads in this country, highly commends the great depots of New York, Washington, Detroit and St. Louis, but says that for comfort and service the British railways can show their American cousins a clean pair of heels. He winds up by saying: "The engines and rolling stock would bring discredit upon any company in Britain. Dirt seems to be the watchword. Paint, soap and water are displaced by grime and rust, yet it is noteworthy that the engine drivers and firemen invariably wear gloves at their work. The running of the coaches, however, is much smoother than in England, due undoubtedly to the longer and heavier rolling stock. Automatic couplings are constant throughout passenger and freight cars—but as regards the former I noticed much jarring when starting. Another source of annoyance to the

British passenger is the incessant ringing of the cow bells when passing through towns. To hear a dozen engines at a busy station clanging these bells at night is an irritation which savors to the sophisticated Englishman as a form of wanton torture."

Railroad Fuel Conservation—"A general fuel conservation committee, including the general manager, the mechanical superintendent, the superintendent of transportation, the superintendent of fuel conservation, the fuel purchasing officer, the assistant chief engineer, the auditor of disbursements and the secretary has been formed on the Missouri Pacific railroad," says the **Railway Age.** "The committee will prescribe plans and practices to further economies in fuel purchases, distribution, handling, storage and consumption."

Railroad Superintendents' Convention—One of the remarkable features of the American Association of Railroad Superintendents which has just held its first annual meeting since 1916, is that during the interim of seven years the membership increased by more than 50%, although no general meetings were held. In 1916 there were 740 members; today there are 1,168. This is a condition that is altogether unusual, and seems to demonstrate the fact that railroad superintendents are rather proud of their independent organization, and have had complete confidence in the officers and committees that have been carrying on the work of the organization while wartime operating conditions and those of the subsequent reconstruction period have prevented the annual gathering in convention.—**Railway Review.**

Freight Car Loadings Set New Mark—Loadings of freight cars during the week ended June 30th, totalling 1,021,770, set a new high record, topping the 1,018,539 mark registered in the week ended October 14, 1920. This new record was made at a time when the net surplus of cars totalled over 52,000 daily. It shows the gain in industrial activity over last year when compared with the loading of only 862,845 cars for the week ending June 30, 1922. The American Railway Association officials expect loadings to hover around the million mark weekly throughout the Summer, reaching a probable maximum of 1,200,000 cars in October. The new record made in June is all the more remarkable when it is considered that the year's peak comes in October with the movement of crops and harvest. The record also was made in the face of decreasing demand for coal and coke.—**Iron Trade Review.**

Expects a Shortage—A railroad superintendent on a Missouri road writes to the **Railway Review** as follows: "I think there will inevitably be a car shortage in the coming Autumn, although of course it will not be nearly as acute as it was last year. To my mind the labor situation is extremely bad, and the southern roads will be at a disadvantage in handling operation and maintenance work. Negroes are going north to St. Louis at the rate of 1,000 a week—the kind of labor that roads in the south require and must have, for they use negroes altogether on track work."

Rough Handling of Trains—"We hear a good deal about car shortages, about the necessity for the reduction of bad-order cars, and of increasing car mileage," says the **Railway Review.** "One element in the solution of this question is a more careful handling of cars, both in trains and in yards. If cars are not broken up there will be more of them in service. If they are not in the shop for repairs they will be available for service on the road. If the amount paid out for loss and damage claims is reduced, more money will be available for the purchase of new cars and other equipment and the needed facilities necessary to expedite car movements. Campaigns for careful handling have resulted in great savings on many roads, but perhaps the greatest benefit will come from the aroused interest in the subject, from setting forth the need for these campaigns and pointing out the possibilities for unlimited savings."

METALS.

Copper in Automobiles—It has been stated that considerably more copper has been going into automobiles in the last year or two; that whereas in 1920 about 120,000,000 pounds of copper was credited to the automobile, 144,000,000 pounds was used in 1922. In 1920 the total was around 92,000,000 pounds, and in 1919 about 97,000,000 pounds. If these

figures are compared with the production of automobiles and trucks for the respective years it will be found that per car produced very little if any more copper was used last year than in 1921, 1920 or 1919. The total of copper entering into motor car construction was at high point in 1922, but for the 2,659,064 cars and trucks made in that year 144,000,000 pounds of copper represents practically the same amount per unit as the 120,000,000 pounds which went into the 2,205,197 cars and trucks of 1920. Competition among automobile producers is such that, unless absolutely necessary, no increased cost will be incurred, and the facts regarding copper are in line with that policy.—**Iron Age.**

Zinc Coating for Steel—"At a recent meeting in Pittsburgh of representatives of the National Association of Sheet and Tin Plate Manufacturers and of the American Zinc Institute, it was stated that last year substitutes for zinc-coated iron and steel replaced 1,000,000 tons of sheets which would have required more than 100,000 tons of slab zinc for protective purposes," says the **Iron Age.** "There has been dissatisfaction with some zinc-coated materials, variously ascribed to too little zinc and to improper methods of manufacture. In the circumstances the development of the plans set on foot at Pittsburgh will be awaited with no little interest. Naturally what the consumer wants and is willing to pay for will be the decisive factor in all questions of the market or of manufacturing practice."

Copper Wire Standards—"The American Society for Testing Materials has been designated by the American Engineering Standards committee as sponsor for the standard specifications for soft or annealed copper wire, for lake copper wire, bars, cakes, slabs, billets, ingots and ingot bars, and for standard methods of battery array of copper," says the **Iron Trade Review.** "These specifications were approved some time ago as tentative, and the Testing Material Socie now contemplates the organization of a sectional committee to revise them."

FOREIGN

World Trade in Steel Rails — Before the war Germany was the leading exporter of steel rails, and the United Kingdom was second. Since that time the exports from these two countries have been markedly curtailed, leaving the United States in the lead with 71% of its pre-war export tonnage. German productive capacity appears to have been impaired for some time to come, but British exports have been increasing steadily since 1919, while those from the United States have been decreasing, so that it is not impossible that the United Kingdom may soon again forge ahead of the United States as an exporter of rails. Up to about the beginning of the century the United Kingdom was easily the dominating figure in the international rail trade. Until the outbreak of the war British exports had declined only slightly, but those of the United States and Germany had increased, particularly the latter, in the years just before the war. From 1908 to 1913 German exports increased from 331,323 to 500,835 metric tons, or 51%, while United States exports increased only 27% from 1900 to 1913.—**Blast Furnace and Steel Plant.**

Hudson Bay Company Still British—British stockholders of the Hudson Bay Company have frustrated alleged efforts of American interests to get control of the company by adopting a resolution prohibiting foreign corporations or those under foreign control from owning more than a quarter of the total capital stock. These American capitalists are said to be much interested in the great holdings of the company in Canada, extending into the Arctic, which are believed to contain great quantities of petroleum. Speculation as to the reason for the step taken by the company is to the effect that the move made was merely one of reprisal or was else made to maintain British domination in the company's affairs. The recent act of the Union Oil Company of California in organizing a financial trust so as to keep the company's affairs in the hands of Californians is pointed out as a parallel case and as a possible incentive.—**Engineering and Mining Journal-Press.**

The Ruhr Invasion—In an article on this subject written for the Blast Furnace and Steel Plant by its Paris correspondent, in which he goes extensively into the industrial phase of the matter, he winds up by saying: "The common interests of Lorraine and Westphalia ought to provide the basis of an agreement. Lorraine, since the return to France of the provinces lost by her in 1870, makes of France the greatest producer of iron ore in Europe. One hundred and thirty blast furnaces and numerous factories of France are waiting for the necessary coal which would enable them to turn out 7,000,000 tons of cast iron and 5,000,000 tons of steel. But if France lacks coal, her neighbor Germany possesses it in great quantities while on the contrary lacking iron ore. The result is easy to guess; the Lorraine iron ore must, with the cast iron and the half-products of the valley of the Moselle, take again the road of the Rhenish and Westphalian furnaces, as in 1913. The first step toward it has already been taken. In the first half of 1922 over a million tons of French iron ore crossed the frontier in exchange for a quantity of industrial coke sufficient to satisfy the requirements of three-quarters of the Lorraine coke consumption. Moreover, the French Comite des Forges, which has been working only to 40% of its capacity, was enabled to increase that figure, thanks to the increased sales to the German iron masters. Economically, the case for a Franco-German understanding is proven beyond the possibility of doubt or of dispute. There remains the important work of putting a stop on both sides to the stirring up of hatred. The gap to be bridged between the two peoples is very wide and deep, and the first step should be to cease digging it deeper and wider, as is unfortunately being done at the present time."

Competition in Far East—In considering the question of establishing an iron and steel industry in British Columbia, the possibility of competition from the Far East must always be reckoned with. Successful competition by Japan or India must rest upon an adequate supply of cheap labor in those countries. A straw which shows which way the wind blows in Japan is the recent report that trades unions are increasing in strength, and that, while the cost of living has remained stationary during recent months, the rate of wages in general has increased.—**Iron and Steel of Canada.**

American Ships for American Commerce—"It ought to be a matter of pride to Americans that the Stars and Strips trails over the stern of the largest passenger ship sailing the seas," says the **Electrical World.** "The Leviathan, reconditioned and largely rebuilt after memorable service as a transport during the war, now flies the pennant of the United States Lines, signifying that once more Columbia is 'gem of the ocean,' and also, let us hope, that Columbia will occupy its former place in the shipping world. While we would much prefer that American ships should be privately owned and operated, and that American seamanship should stand on a parity with the seamanship of other nations, these are conditions which eventually will obtain. The significant thing, and the all-important thing, to us is that the American flag shall remain on the seas because it stands for American commerce, for American enterprise and for American freedom. With the growth of foreign trade, with the abandonment of ideals of national isolation which were never embraced by any political party or enlightened group of citizens, and which the progress of invention has made forever impossible, and with American pay, American comforts and the American type of discipline superseding the Old World conditions that formerly made a sailor's life repugnant to lads reared in democracy, the rebirth of the United States marine should be at last assured."

Machinery Markets in Asia—An excellent report on machinery markets in Asia has just been issued by the Department of Commerce. It was written by W. H. Rastall, now chief of the Industrial Machinery Division, who has had wide experience in the regions involved. The report clearly shows that startling changes have taken place in this trade. During the last four years these markets have absorbed some $242,000,000 worth of American industrial machinery, which is more than would have been absorbed in five decades at the 1915 rate. In the confusion of other great events,

especially in Europe, the significance of this appears to be unnoticed, but it is really of great import. The potentialities of such a volume of machinery in the hands of the millions of Asia are tremendous. Mr. Rastall finds that Asia, from Yokohama to Bombay, is ready to be industrialized; that American engineering and machinery are appreciated, and that the sales problem is much simpler than before the war. He is of the opinion that we can export there about $40,000,000 to $50,000,000 worth of machinery per year, and foreign sales managers should develop their organizations to correspond.—**American Industries.**

American Capital Sought by Austria—Representatives of Austrian provinces are in the United States seeking American financial aid in the development of power projects in that country, the aim of which is to bring about the electrification of practically all the railway systems in Austria, and furnish power for numerous industries there. The difficulty of obtaining adequate supplies of fuel has resulted in seriously handicapping industry throughout that country, and it is contended that the electrification of the railway companies, as well as the electrification of industrial plants, would revolutionize the commercial and industrial situation.—**Electrical World.**

MISCELLANEOUS

Canadian War Veterans Demand Preference—The Canadian veterans of the world war in convention at Vancouver passed a resolution calling for preference for themselves in the application of the seniority rules on the railways of Canada. They propose, first, that they be given seniority over all unnaturalized aliens; second, that seniority as compared with other Canadian citizens date, not from the beginning of the railway service, but from the date of their enlistment in the army; third, that ex-soldiers be given preference in the employment of new men and in promotion to better positions. The delegates complained that ex-soldiers had been laid off due to reductions in force, while under existing seniority rules, enemy aliens were permitted to remain in service.—**Railway Age.**

Prices at Proper Level—F. De St. Phalle, vice president of the Baldwin Locomotive Works, writing for the **Railway Review** on the advantages of the recent rise in prices, says: "The United States is becoming the leading business nation of the world, and since the war all important economic developments and cycles have taken place in the United States first. In the Summer of 1922, when the post-war depression suddenly came to an end, many American business leaders were unconscious of approaching recovery, and in fact were extremely pessimistic, endeavoring to reduce wages instead of going ahead with their business. The recovery was caused by economic pressure and by the courageous and persistent action of thousands of citizens. After this recovery became stabilized, prices rose to a level which is undoubtedly the proper one at this time, because it has become fixed not arbitrarily but through the free action of natural forces. Prices could not go back to pre-war levels, because higher levels are now necessary to pay taxation and depreciation due to war debts and war destruction. Undoubtedly Europe, following the cycle, is approaching an era of higher prices similar to that now prevailing in the United States."

Machine Alignment—Thomas Airey, writing in **Power**, says: "One method employed to discover if an engine is out of alignment is that of stretching a line through the cylinder and stuffing box. The line is passed through a small hole in the end of a piece of iron plate that is secured to the face end of the cylinder by one of the stud bolts. It is then passed through the bore of the stuffing box and over a supporting bracket fixed at the main-bearing end of the engine, a weight being attached at the end to keep it tight. Although the method is the most accurate one, it entails a lot of time, and as time is of great importance in the power house, some simpler method is often to be preferred. An engine fitted with a bored guide seldom gets out of alignment with the cylinder because the crosshead guides are bored square with the end face which meets the cylinder. Yet, as time goes on, the stuffing-box neck ring and gland become worn, gradually letting the piston fall to the bottom of the cylinder. Thus misalignment is set up between the piston and the guides."

COMPARISON OF METAL PRICES

	Range for 1921.		Range for 1922.		Range for 1923.		Closing July 31,
Pig Iron.	High.	Low.	High.	Low.	High.	Low.	1923.
Bessemer, valley	32.00	20.00	33.50	19.00	31.00	26.50	26.50
Basic, valley	30.00	18.00	30.50	17.75	31.00	25.00	25.00
No. 2 foundry, valley ...	33.00	19.50	35.50	18.75	31.00	25.00	25.00
No. 2X fdy. Philadelphia	33.79	19.84	34.76	21.34	33.16	26.76	26.76
No. 2 foundry, Cleveland	33.56	20.56	35.50	19.56	32.50	26.77	26.77
No. 2X foundry, Buffalo .	31.25	19.00	34.25	19.50	30.25	24.75	24.75
No. 2 foundry, Chicago ..	33.00	18.00	33.00	18.50	32.61	28.11	28.11
No. 2 Southern, Birm. ...	34.00	16.50	28.00	15.00	27.00	23.00	25.00
Scrap Iron and Steel.							
Melting Steel, Pittsburgh	17.00	12.75	22.00	14.00	27.00	17.50	17.50
Heavy steel scrap, Phila.	16.00	10.00	19.00	11.00	26.50	16.50	16.50
Heavy melting steel, Chi.	16.50	10.00	19.00	11.00	24.50	16.75	16.75
No. 1 cast, Pittsburgh ..	22.50	15.00	25.00	16.00	27.50	20.50	20.75
Iron and Steel Products.							
Bessemer rails, mill	45.00	40.00	43.00	40.00	43.00	43.00	43.00
Iron bars, Pittsburgh	3.06	1.85	2.55	1.80	2.82	2.35	2.70
Iron bars, Philadelphia ..	3.85	1.80	2.58	1.70	2.82	2.32	2.67
Steel bars, Pittsburgh ..	2.35	1.50	2.25	1.35	2.40	2.00	2.40
Tank plate, Pittsburgh ..	2.65	1.50	2.50	1.35	2.50	2.00	2.50
Structural shapes, Pitts..	2.45	1.50	2.25	1.35	2.50	2.00	2.50
Grooved steel skelp, Pitts.	2.45	1.50	2.10	1.40	2.50	2.00	2.40
Black sheets, Pittsburgh.	4.35	2.75	3.75	3.00	4.00	3.35	3.85
Galvanized sheets, Pittsb.	5.70	3.75	4.75	4.00	5.50	4.35	5.00
Tin plate, Pittsburgh ...	7.00	4.75	4.75	4.60	6.00	4.75	5.50
Wire nails, Pittsburgh ..	3.25	2.50	2.70	2.40	3.00	2.70	3.00
Steel pipe, Pittsburgh....	57½%	71%	66%	71%	62%	66%	62%
Connellsville Coke at Ovens.							
Prompt furnace	5.00	2.75	15.00	3.75	9.00	4.00	4.00
Prompt foundry	7.00	3.75	16.00	3.75	9.50	5.25	5.50
Metals — New York.							
Straits tin	65.00	32.50	39.00	25.50	51.50	37.50	38.62½
Lake Copper	20.50	13.75	14.00	12.00	17.50	14.75	14.87½
Electrolytic copper	19.50	12.75	13.75	11.50	17.25	14.50	14.55
Casting copper	19.25	12.75	13.00	11.25	16.87½	14.25	14.25
Sheet copper	29.50	22.50	21.50	19.50	25.50	19.25	23.25
Lead (A. S. & R. Co. price)	9.25	4.75	5.00	4.00	8.25	6.00	6.50
Zinc (spelter)	9.85	6.00	6.10	4.25	8.35	6.00	6.62½
Chinese and Japanese Ant.	11.62½	5.20	6.00	4.45	9.00	6.25	7.75
Aluminum, 98-99%	32.75	22.00	26.00	17.00	26.50	22.50	26.25
Silver	137	59¼	73⅝	52⅝	73¾	62⅜	62⅝
St. Louis.							
Lead *	9.15	4.45	5.05	3.90	8.50	5.67½	6.67½
Zinc (spelter)	9.50	5.50	5.60	4.12½	8.00	5.75	6.30
Sheet zinc (f.o.b. smelter)	12.50	11.50	11.50	8.50	10.00	8.90	8.90
London.	£	£	£	£	£	£	£
Standard tin prompts	415½	198	210½	148	232	176⅛	184¾
Standard copper, prompts	122	70½	75½	65¼	76¼	63⅜	65¼
Lead	52⅜	21½	26	16½	29⅝	23¾	24⅜
Zinc (spelter)	63	22½	28¼	23½	39⅛	27⅝	31¾

* Outside market.

COMPARISON OF SECURITY PRICES

Iron and Industrial Stocks.	Range. 1920. High.	Low.	Range. 1921. High.	Low.	Range. 1922. High.	Low.	Range. 1923. High.	Low.	Closing July 31, 1923.
Allis-Chalmers.....	53⅞	26½	39¾	28¼	59¾	37¾	51¼	37¾	39¾
American Can	61¾	21¾	35½	23½	76½	32⅛	106	73½	86¾
American Car & Fdy...	147⅜	111	151	115¼	201	141	189	148¼	153¼
American Loco. (new)	....	....	....	....	....	....	72	64¾	67½
American Smelt. & Rfg.	72	29¼	47¼	29⅝	67½	43⅝	69½	53	53¾
Am. Steel Found., new.	50	26	35	18	46⅛	30¾	40⅞	31⅜	33⅛
Anaconda Copper	66½	30	50¾	31¾	57	45	53½	38	39
Baldwin Loco	148½	78	100⅜	62¼	142¾	92¾	144¼	111¼	111⅝
Bethlehem Steel.....	....	....	....	....	79	51	70	41¾	45⅝
Butte & Superior	29¼	8	22⅛	10	35¼	20⅜	37⅜	17½	18½
Cerro de Pasco	61⅜	24¼	36½	23	46⅜	32⅞	50½	36⅝	37⅝
Chile Copper	21¼	7¾	16⅞	9	29¼	15⅛	30⅝	24⅛	26⅛
Chino Copper	41⅝	16⅜	29½	19½	33⅜	22¼	31⅞	17	17½
Colo. Fuel & Iron	44¼	22	32¾	22	37⅜	24	35⅜	25	25
Crucible Steel	278½	70	107½	49	98⅜	52¾	84½	57⅞	59
General Electric	172	116½	143¾	109½	190	136	190	170½	172⅛
General Motors	42	10¾	16¼	9⅜	15¼	8⅛	17½	12¾	13¾
Granby Con.	55½	15	34½	15	35	22	33	15¾	17
Great Northern Ore ...	41⅝	24⅞	35⅜	25⅝	45⅝	28⅞	36	25	26
Gulf States Steel	84⅞	25	50⅞	25	94⅞	44⅞	104⅝	65¼	67
Inspiration Copper	61⅞	28	42¼	29⅝	45	31	43¾	27	27
International Harvester	142½	88	100½	67⅝	115⅞	79⅜	98½	71	72
International Nickel...	26¾	11⅛	17	11½	19¾	11¼	16¼	11⅛	12
Kennecott Copper	33½	14⅝	27⅞	16	39⅝	25½	45	32	32⅝
Midvale Steel	52¾	29½	33½	22	45½	26	33⅜	21½	23¾
National Enam. & Stg..	89½	43¾	66	26	68½	30¾	73	55½	56¾
National Lead	93¼	63½	87	67¾	129¼	85	136¾	108	110⅝
N. Y. Air Brake.....	....	....	....	....	41⅝	24½	41	26⅝	30⅛
Pressed Steel Car	113⅞	72½	96	48	95¼	63	81½	50	50
Railway Steel Spring ..	106½	73	99½	67	126¼	94	123	100	100¼
Ray Consolidated	22¾	10	15⅞	11	19	12⅛	17¼	10	10⅛
Republic Iron & Steel.	124¾	55¼	73½	41	78½	43½	66¼	40⅛	42
Sloss-Sheffield	82¼	43	56	32⅛	54½	34½	60	39¼	43
U. S. Cast Iron Pipe ...	25½	10½	19	11½	39	16⅛	34½	20	23
U. S. Smelt., Rfg. & M.	76	29½	39⅜	26	45¾	32¾	43⅜	20	22⅞
U. S. Steel Corporation	109	76¼	86½	70	111½	82	109⅝	85½	85⅝
U. S. Steel Corp. pfd....	115¾	104⅛	115	105	123	114¼	123½	116¾	117⅞
Utah Copper	80¾	44⅛	63⅜	41⅛	71½	59	76½	56	57¾
Westinghouse Electric.	55⅛	40	52¼	38⅞	65⅞	49⅛	67⅛	52½	54⅝

BUSINESS TRENDS

COMMODITY PRICE INDEX NUMBER LOWER.

A further decline in commodity prices during the past month has again lowered Dun's Index Number and for the fourth successive month a reduction has appeared, the toal on August 1st being $186.675. The yielding in prices during July was very small, affecting the clothing class, meats, "other food" products, metals and "miscellaneous" divisions, five of the seven classifications into which this tabulation is divided. Compared with a year ago, commodity prices are now 7.6% higher than they were then. At that period the tendency was upward, as it had been since Midsummer of 1921. The advance, which began in the last mentioned year, started in July, and with only trifling and unimportant checks culminated in the high point for this movement with the prices of April in the current year, when Dun's Index Number was higher than for any period since January, 1921. As compared with August, 1921, the index number now shows a gain of 14.1%. In contrast with the recent high point in April of this year there is a recession of 3.4%.

British commodity prices declined somewhat during July, according to the "Economist," whose total index number for the month is 4182 compared with 4301 for June. These figures compared with a basic average for 1901-1905 prices of 2200 points, the July figure being thus almost 90% above this figure.

OUR FOREIGN TRADE.

While exports and imports of the United States during June almost balanced, after several months which showed unfavorable figures for this country, an analysis given out at the Commerce Department indicate great variations in the trade as it involved individual countries.

To Europe the United States sent $50,000,000 more in goods than it imported, while from Asia this country took $55,000,000 more than it sent. South American territory imported $24,000,000 in merchandise from the United States and sold this country $36,000,000 worth.

The foreign trade of the United States in the nine years since the beginning of the war is three-fourths as much as in the 125 years preceding the war. Statements compiled by the Trade Record of The National City Bank of New York show that the foreign trade of the United States in the nine years from the close of the fiscal year 1914 to the end of the fiscal year 1923 was $77,000,000,000, against $109,000,000,000 in 125 years from the adoption of the Constitution to the end of 1914. Imports in the nine years since the beginning of the war to the end of the fiscal year 1923 are $28,000,000,000, against $50,000,000,000 in the 125 years preceding the war, and exports since 1914 are $49,000,000,000, against $59,000,000,000 in the pre-war period. The excess of exports over imports in the nine years since the beginning of the war is $21,000,000,000, against an excess of but $9,000,000,000 in the 125 years prior to the war.

INCORPORATIONS INCREASE.

During July 699 new companies were organized under the laws of the different States with an authorized capital of $100,000 or over, representing $724,920,000. While this total is smaller than in recent months, it shows an increase over the July figures a year ago, when 589 new concerns were incorporated with a combined authorized capital of $634,259,200. Not a few plans calling for the formation of new enterprises have been postponed until some of the uncertainties now surrounding the situation are out of the way. Nevertheless the past month's returns make a good showing.

Since January 1st, 5,948 new companies have been formed with an authorized capital of $5,062,965,120. For the first seven months of 1922 5,686 charters were filed involving a grand total of $4,829,308,400. During the corresponding period of 1921 5,906 concerns were incorporated with an authorized capital of $5,398,140,800.

The following are the comparative figures as compiled by **The Journal of Commerce** of companies incorporated in the States with authorized capital of $100,000 or over.

	1923	1922
January	$909,693,800	$ 843,652,900
February ...	700,708,300	591,404,300
March	500,819,000	731,866,000
April	1,006,258,300	792,372,000
May	817,229,500	938,195,000
June	1,403,336,220	297,557,000
July	724,920,000	634,259,200
August	.....	646,605,000
September ..	.....	650,044,000
October	.....	651,577,390
November ..	.....	808,719,600
December ...	.....	813,901,000
Total	.....	8,400,153,390

BUSINESS TRENDS

CAR LOADINGS REACH NEW HIGH RECORD.

Loadings of freight cars during the week ended July 21st totaled 1,028,927 cars, representing a new high record for the railroads of the country. This figure exceeds by 7,157 the previous high record of 1,021,770 reached in the week ended June 30th.

Freight loadings for the week of July 21st, this year, also exceeded the corresponding week last year by 183,379 cars, and the corresponding week in 1921 by 240,893 cars.

While the number of cars loaded with revenue freight for the week of July 21st was an increase for the country as a whole of 21.7% over the corresponding week last year, when the miners' strike was in progress, freight loading in the western district increased only 12½%, and in the southern district 14.1%. The increase in the eastern district, which includes the Pocahontas district, was 31.7% partly due to curtailment in coal loading last year because of the miners' strike.

The following is a comparison of the cars loaded with revenue freight since March 3rd with totals for the two preceding years.

Week ended	1923	1922	1921
July 21 ...	1,028,927	845,548	788,034
July 14 ...	1,019,667	850,676	774,884
July 7 ...	854,748	707,025	640,535
June 30 ..	1,021,770	862,845	776,079
June 23 ..	1,002,740	866,321	775,447
June 16 ..	1,007,253	848,657	775,328
June 9 ...	1,013,249	836,208	787,283
June 2 ...	932,041	739,559	693,903
May 26 ..	1,014,029	806,877	795,335
May 19 ..	991,797	780,953	770,991
May 12 ..	974,531	767,094	751,186
May 5 ..	961,029	747,200	721,722
April 28 ..	963,694	751,111	721,084
April 21 ..	957,743	706,137	704,632
April 14 ..	946,759	700,155	702,116
April 7 ..	895,767	706,013	694,881
Mar. 31 ..	938,725	851,808	663,171
Mar. 24 ..	917,036	837,241	686,567
Mar. 17 ..	904,286	815,082	691,396
Mar. 10 ..	905,219	829,128	700,440

BANK CLEARINGS.

Bank clearings reports to Bradstreet's reflect the further quieting in trade and speculation in July in a total at 117 cities of $81,335,534,000, a decrease of 7.9% from June, and the smallest monthly total for the year to date, except in February. Compared with July a year ago, however, there is a gain of four-tenths of 1%. The greater part of the decrease from June occurred at New York, where clearings totaled $16,645,480,000, a decrease of 10.8% from June and of 9.2% from July a year ago. New York clearings are the smallest, in fact, in any month since February, 1922, or eighteen months ago. Clearings at 116 cities for July this year total $14,690,045,000, a decrease of 4.4% from June, but a gain of 14.2% over July last year. Owing to the decrease at New York, the middle states group shows a decline from last year in July, but with this exception every group of cities shows a gain over last year, these ranging from 4.5% in the southwest to 11.4% in the northwest, 15% in the south, 16.4% in New England, and 19.4% in the central west.

Bank clearings for seven months at 117 cities total $234,939,506,000, a gain of 9.2% over the like period of 1922. New York City shows a gain of only 1%, whereas outside that city the gain is 21.5%.

Following are the aggregates of clearings monthly at 117 cities, compared with the like periods in four preceding years: (Six figures omitted.)

	1923	1922	1921	1920
Jan. .	$36,365	$29,450	$32,223	$40,169
Feb. .	30,032	26,023	25,443	32,001
Mar. .	35,351	31,528	29,672	39,703
Apr. .	33,012	30,996	27,688	38,012
May .	34,791	32,346	27,367	35,527
June .	34,053	33,558	28,916	36,800
July .	31,335	31,235	26,834	35,819
Aug. .	.....	29,879	26,096	32,799
Sept. .	.....	30,712	27,059	34,385
Oct. ..	.....	34,890	28,974	37,099
Nov. .	.....	31,329	29,200	34,407
Dec. .	.....	33,775	31,402	36,029
Total	.....	375,721	340,874	432,750

HOW BUSINESS CAN SLUMP.

The Example of 1921.

As illustrating the sensational changes in business to which the United States is at times subject one has only to contrast 1921 with 1919. The slump in business in 1921 carried the value of manufactures in the United States to a point more than eighteen billions of dollars under the post-war activity of 1919, according to the Department of Commerce's detailed comparison of 1921 and 1919. Manufacturing plants in 1919 turned out products valued at $62,041,795,000, but by 1921 the total value had receded to $43,653,283,000.

A total of 196,267 manufacturing establishments was doing business in 1921, against 214,383 in 1919. Wage earners numbered 6,946,564 in 1921 and 9,000,059 in 1919. Salary and wage payments aggregated $10,763,442,000 in 1921 and $13,342,655,000 in 1919. The cost of material used was $25,338,617,000 in 1921 and $37,288,731,000 in 1919.

IRON AND STEEL EXPORTS

Exports for First Six Months 1923 Less Than in First Half of 1922—June Outgo Better Than 1922 Monthly Average

Exports of iron and steel from the United States during the first six months of 1923 amounted to 982,144 long tons, as compared with 1,160,177 tons for the corresponding period of 1922. The quantity of iron and steel that left United States ports for foreign lands in June, 1923, however, was higher than the monthly average for 1922.

The export trade in American iron and steel during May, June and the first six months of 1923, as shown by compilations of the iron and steel division of the Department of Commerce was distributed among the various products as follows:

Exports.

Articles.	May Tons	June Tons	Jan. through June Tons
Pig iron, not inc. ferro-alloys	1,848	2,960	14,845
Scrap	3,809	4,572	21,228
Ingots, blooms, billets, sheet bars and skelp	12,824	9,652	63,438
Iron bars	1,128	1,190	9,197
Steel bars	14,280	14,480	83,968
Alloy steel bars	210	280	913
Wire rods	4,036	2,626	16,249
Plates, iron and steel	11,229	11,177	66,669
Galvanized sheets	12,773	10,665	67,497
Black steel sheets	12,138	9,995	55,935
Black iron sheets	1,421	2,214	7,601
Hoops, bands and strip steel	4,286	2,789	20,696
Tin plate, terne plate, etc.	13,328	6,966	52,215
Structural shapes, plain material	11,646	12,141	66,000
Structural materials, fabricated	6,436	5,808	35,291
Metal lath	190	107	575
Steel rails	30,847	18,937	117,831
Rail fastenings, switches, frogs, etc.	5,263	2,964	18,151
Boiler tubes and welded pipe	17,662	17,430	87,513
Cast iron pipe and fittings	3,031	1,782	13,213
Malleable iron pipe fittings	632	512	3,393
Plain wire	13,815	11,183	50,403
Barbed wire and woven wire fencing	8,917	8,856	41,636
Wire cloth and screening	109	125	675
Wire rope	599	779	3,487
Insulated wire and cables	55	92	1,163
Wire, n.e.s., and manufactures of	1,350	1,345	7,301
Wire nails	4,789	4,525	19,090
Nails other than wire, incl. tacks	749	705	4,738
Horse shoes	61	169	462
Bolts, nuts, rivets, and washers, except track	1,393	2,095	9,332
Car wheels and axles	1,835	1,834	8,650
Iron castings	506	935	5,033
Steel castings	948	595	2,404
Forgings	248	217	1,645
Ferromanganese and spiegeleisen	503	200	3,216
Ferrosilicon	94	45	491
Total	204,988	172,747	982,144

IRON AND STEEL MARKET

Operations in the iron and steel industry have been slowing down very gradually, and more gradually perhaps than might have been expected, considering the specific fact that all buyers had been as reserved in considering the third quarter as they had been eager to make commitments for the second quarter, and the general fact that sentiment in all business circles has been very conservative.

In the case of steel making, operations furnish directly a measure of the demand of customers, for mills do not make stocks and customers do not hesitate to cancel orders or instruct that shipment be suspended, if they do not want material. The continued heavy operation of steel mills, for production is heavy even though there has been a decrease, shows that the demand existed.

The case of pig iron is somewhat different. Sales of pig iron are outright and when consumers purchased heavily for second quarter their taking the iron according to schedule does not prove that they consumed it. The market has indeed, shown evidences that consumption of second quarter iron was by no means completed by August 1st.

April was the high month in steel ingot production, May showing 1.4% decrease and June 7.3% decrease additional, while there was a further decrease in July, both through there being lighter operation in general and through a few units being closed the first week or fortnight of the month.

Assuming the rate of steel ingot production August 1st to be about 40,000,000 tons a year, there has been a decrease, from the top point, of 18 or 20% in the rate, yet at that there is merely a return to the highest rate seen in 1922.

There were so many reasons for doubting that the actual current requirements in steel could be equal to the heavy production that was unexpectedly being accomplished in the earlier months of the year that the important point now is that production has decreased but that it keeps up as well as it does.

COMPOSITE PIG IRON.

Computation for August 1, 1923.

One ton Bessemer, valley	$26.50
Two tons basic, valley (25.00)	50.00
One ton No. 2 fdy., valley	25.00
One ton No. 2X fdy., Philadelphia	26.76
One ton No. 2X fdy., Buffalo	24.75
One ton No. 2 fdy., Cleveland	26.77
One ton No. 2 fdy., Chicago	28.11
Two tons No. 2 southern foundry, Cincinnati (29.05)	58.10
Total, ten tons	265.99
One ton	**26.599**

Averaged from daily quotations.

	1923.	1922.	1921.	1920.	1919.	1918.
Jan.	27.31	19.71	32.62	39.84	32.39	34.19
Feb.	27.98	19.31	29.95	42.72	32.39	34.19
Mar.	30.36	19.26	27.35	43.05	30.47	34.14
Apr.	31.44	20.77	25.80	43.62	28.05	33.88
May	30.84	23.91	24.67	44.43	27.74	33.88
June	29.11	24.29	23.08	44.80	27.15	33.91
July	26.98	24.54	21.57	45.60	27.66	34.04
Aug.	....	27.74	20.29	47.41	27.99	34.04
Sept.	....	32.48	20.99	48.98	28.26	34.31
Oct.	....	31.82	21.15	47.07	28.65	35.36
Nov.	....	29.47	20.92	41.80	31.48	35.39
Dec.	....	26.73	20.42	36.31	36.73	35.23
Year	....	25.00	24.05	43.80	29.91	34.38

Annual Averages.

1917	39.99	1914	13.52
1916	20.31	1913	15.42
1915	14.15	1912	14.82

COMPOSITE STEEL.

Computation for August 1, 1923.

Pounds	Group	Av. Price	Extension
2½	Bars	2.40	6.000
1½	Plates	2.50	3.750
1½	Shapes	2.50	3.750
1½	Pipe (1-3)	3.80	5.700
1½	Wire nails	3.00	4.500
1	Sheets (28 ga.)	2.85	3.850
½	Tin plate	5.50	2.750
Total, ten pounds			30.300
One pound			**3.03**

Averaged from daily quotations.

	1923.	1922.	1921.	1920.	1919.	1918.
Jan.	2.59	2.16	3.25	3.35	3.58	3.80
Feb.	2.72	2.14	3.10	3.58	3.58	3.80
Mar.	2.83	2.09	2.94	3.78	3.47	3.80
Apr.	2.99	2.16	2.93	3.77	3.25	3.80
May	3.03	2.18	2.93	3.71	3.25	3.80
June	3.03	2.22	2.83	3.67	3.25	3.80
July	3.03	2.23	2.63	3.70	3.25	3.80
Aug.	....	2.36	2.48	3.80	3.25	3.80
Sept.	....	2.51	2.37	3.80	3.22	3.80
Oct.	....	2.57	2.31	3.67	3.23	3.80
Nov.	....	2.57	2.28	3.50	3.25	3.80
Dec.	....	2.57	2.23	3.28	3.25	3.67
Av.	....	2.31	2.69	3.63	3.32	3.79

Annual Averages.

1917	4.46	1915	1.63	1913	1.72
1916	2.80	1914	1.52	1912	1.62

There has been no rush of buyers of steel to cancel orders or to instruct that shipment be postponed. There has been only a little of this, and the condition indicates that there had been little or no over-buying.

If consumers have really been using all the steel they have been receiving the foundation of the steel market is a very strong one. The indications are that stocks are not accumulating, but so regularly have stocks been found in buyers' hands at the end of a movement in steel that one is disinclined to feel any strong confidence in present appearances.

PIG IRON

The course of the decline in pig iron is succinctly shown by our **composite pig iron**, declines in which have been as follows in the months named:

May	$1.47
June	1.85
July	1.45

The figures would suggest the possibility of the decline tapering off or nearing its end, and the conditions existing at the beginning of August suggest that the market may be scraping bottom. It is not that consumption is increasing but that production is decreasing, and rather rapidly, for whatever may be the

PIG IRON PRICES.

(Averaged from daily quotations; at Philadelphia, Buffalo, Cleveland and Chicago, prices are delivered.)

	Bessemer, Valley	Basic Valley	No. 2 fdy. Valley	Basic. Phila.	No. 2X Phila.	No. 2X foundry Buffalo.	No. 2 fdy. Cleveland.	No. 2 fdy. Chicago.	No. 2 fdy. Birmingham.	Ferro-manganese.*	Comp. Pig Iron.
Feb. 1921	29.63	27.71	28.29	29.28	30.73	30.17	30.15	30.87	27.50	90.00	29.95
Mar. ...	26.70	24.41	25.89	26.54	28.03	29.01	27.70	27.07	25.52	90.00	27.35
April ..	25.00	23.00	24.81	25.47	26.38	27.17	26.77	25.32	23.77	90.00	25.80
May ...	24.32	22.15	23.60	23.70	24.96	25.40	25.56	23.70	21.80	85.00	24.47
June ...	22.88	21.20	22.42	23.54	24.21	22.45	24.17	22.08	20.48	75.00	23.08
July	21.34	19.52	20.40	22.40	23.00	20.68	21.66	19.98	20.18	70.00	21.57
Aug. ...	20.00	18.22	19.59	19.70	20.42	19.48	20.56	19.64	18.70	68.50	20.29
Sept. ..	20.00	19.00	20.86	19.14	20.84	20.08	20.56	22.18	19.06	66.00	20.99
Oct. ...	20.00	19.24	21.00	20.50	21.40	20.50	20.56	22.35	19.00	60.00	21.15
Nov. ...	20.00	19.00	20.78	20.50	21.93	19.82	20.56	21.79	18.56	60.00	20.92
Dec. ...	20.00	19.00	20.00	20.45	21.88	19.38	20.56	20.53	17.31	59.00	20.42
Jan. 1922	19.62	18.19	19.38	20.25	21.34	19.75	19.92	19.84	15.96	58.00	19.71
Feb. ...	19.40	18.00	18.92	19.84	21.34	19.06	19.56	19.18	15.33	65.75	19.31
Mar. ...	19.02	17.89	18.87	19.84	20.73	18.56	19.56	20.48	15.31	62.50†	19.26
April ..	20.88	19.98	20.74	20.75	22.90	20.89	20.76	21.06	15.74	68.00†	20.77
May ...	25.08	24.62	24.00	23.37	25.51	23.44	24.56	23.05	17.63	70.00†	23.91
June ..	25.00	25.00	24.00	25.00	26.62	22.96	24.56	23.83	18.44	68.50†	24.29
July ...	25.00	24.32	24.20	25.54	28.00	25.05	24.56	24.73	18.56	69.00†	24.54
Aug. ...	27.74	26.17	29.04	29.00	31.69	30.42	29.16	28.17	20.37	70.00†	27.74
Sept. ..	33.76	30.08	35.02	30.90	34.76	34.13	35.50	32.53	25.40	77.00†	32.48
Oct. ...	33.23	30.23	31.63	29.50	32.69	31.60	34.27	32.15	27.04	100.00†	31.82
Nov. ...	31.70	28.28	28.78	28.14	30.78	28.41	31.34	30.65	24.12	100.00‡	29.46
Dec. ...	27.78	24.96	25.92	27.50	28.53	26.19	27.38	28.09	22.70	100.00‡	26.73
Jan. 1923	27.50	25.00	27.00	27.90	28.72	27.44	27.83	29.09	23.23	103.00‡	27.31
Feb. ...	27.75	25.67	27.21	28.25	29.79	28.52	28.42	30.13	24.29	106.00‡	27.98
Mar. ...	29.94	29.44	30.00	29.17	31.86	29.40	31.31	31.46	26.33	117.00‡	30.26
April ..	31.00	31.00	31.00	30.50	33.01	30.17	32.50	32.61	27.00	116.50‡	31.44
May ...	30.23	29.33	30.69	30.85	32.64	29.29	32.13	32.61	27.00	123.00‡	30.84
June ..	28.73	26.85	28.04	28.20	30.47	28.87	29.85	32.11	25.63	125.00‡	29.11
July ...	26.82	25.11	25.70	26.45	27.80	25.11	27.32	28.71	25.00	120.00‡	26.98
Yearly averages.											
1913 ...	16.26	14.77	14.87	16.23	16.56	14.87	15.37	16.39	11.73	57.87	15.42
1914 ...	13.99	12.89	13.02	14.02	14.59	12.84	13.76	14.15	10.25	55.80	13.52
1915 ...	14.90	13.78	13.81	14.88	15.25	13.98	14.31	14.46	10.59	92.21	14.15
1916 ...	23.05	19.87	20.16	20.96	21.20	20.63	20.40	20.67	15.84	164.12	20.31
1917 ...	42.67	39.10	39.89	39.37	40.80	40.41	40.61	41.06	35.11	309.17	39.99
1918 ...	35.46	32.50	33.27	34.10	35.56	33.97	33.62	33.77	33.20	245.83	34.38
1919 ...	29.62	27.49	28.63	30.02	32.75	30.53	29.14	29.37	28.34	132.16	29.91
1920 ...	42.85	42.05	43.25	43.26	46.74	45.23	43.66	43.25	40.43	172.33	43.80
1921 ...	23.49	21.87	23.30	23.56	24.74	23.78	24.34	24.05	21.92	76.54	24.05
1922 ...	25.68	23.98	25.04	24.88	27.07	25.04	25.93	25.31	19.72	75.33	25.00

* Delivered. † Seaboard. ‡ F. o. b. furnace.

case with the best positioned furnaces there are many that find present prices unprofitable, hence they are going out. Incidentally they could not sell much pig iron anyhow.

It is true that demand for pig iron was increasing at the end of July, but even with the increase it was well below the production. What occurred, of course, is that second quarter deliveries outran consumption, leaving stocks in buyers' hands. As stocks are used up buying develops, but that is merely in the market. It does not alter the relation between production and consumption, which has been against the market.

PIG IRON PRODUCTION.

Production of pig iron in July—a month of 31 days—is indicated to have been 3,679,810 tons or 118,703 tons a day, whereas in June, a month of thirty days, total production was 3,668,413 tons or 122,280 tons a day. On August 1st, 297 furnaces active had an estimated capacity of 114,500 tons a day, whereas on July 1st, the 322 furnaces active had an estimated daily capacity of 125,000 tons.

Thus, in July, pig iron, that is, anthracite and coke, was produced at an annual rate of 43,326,595 tons whereas the annual rate in June was 44,632,200 tons. On August 1st, anthracite and coke iron was being produced at the rate of 41,792,500 tons a year whereas on July 1st, the annual production was at the rate of 45,625,000 tons.

According to wire reports to the Iron Age, from all but seven out of 322 blast furnaces, the above figures were derived. On August 1st 297 furnaces were blow-

The following table shows the estimated annual rates of production of coke and anthracite iron in each month during the last three years.

Estimated annual rates.

	1923	1922	1921
Jan. ..	38,000,000	19,300,000	28,750,000
Feb. ..	39,000,000	21,300,000	25,550,000
Mar. ..	41,300,000	24,000,000	19,000,000
April .	43,400,000	25,250,000	14,600,000
May ..	45,550,000	27,250,000	14,450,000
June ..	44,630,000	28,900,000	13,000,000
July ..	43,327,000	28,500,000	10,200,000
Aug.		21,550,000	11,250,000
Sept.		24,950,000	13,000,000
Oct.		31,350,000	14,600,000
Nov.		34,900,000	17,200,000
Dec.		36,350,000	19,400,000

Yearly Totals

1922 ..	27,219,904		
1921 ..	16,688,126	1916 ..	39,434,797
1920 ..	36,925,987	1915 ..	29,916,213
1919 ..	31,015,364	1914 ..	23,332,244
1918 ..	39,054,644	1913 ..	30,966,152
1917 ..	38,621,216	1912 ..	29,726,937

UNFINISHED STEEL AND IRON BARS.

Averaged from daily quotations.

1921—	Billets. Pitts.	Sheet Bars. Pitts.	Rods. Pitts.	—Iron bars, deliv.— Phila.	Pitts.	Ch'go.
Jan.	45.00	47.00	57.00	2.85	3.06	2.68
Feb.	42.00	42.00	57.00	2.70	2.70	2.62
Mar.	39.00	39.00	47.00	2.56	2.60	2.60
April	37.00	38.50	47.50	2.35	2.45	2.45
May	37.00	39.00	48.00	2.35	2.35	2.38
June	35.00	36.00	48.00	2.20	2.25	2.25
July	32.00	33.00	43.00	2.07	2.20	1.94
Aug.	30.25	30.50	42.00	2.00	2.08	1.75
Sept.	30.00	30.00	40.50	1.97	2.00	1.75
Oct.	30.00	30.00	40.00	1.92	2.00	1.75
Nov.	29.00	30.00	40.00	1.90	1.97	1.70
Dec.	29.00	29.00	38.00	1.85	1.95	1.70
1922—						
Jan.	29.00	29.00	37.00	1.80	1.82	1.60
Feb.	28.50	29.00	36.00	1.75	1.78	1.60
Mar.	28.00	29.00	36.00	1.70	1.70	1.54
April	30.00	31.75	38.00	1.81	1.75	1.57
May	34.00	35.00	38.00	1.86	1.83	1.65
June	35.00	35.00	38.00	1.96	1.95	1.73
July	35.00	35.00	40.00	2.12	2.13	1.85
Aug.	37.00	37.00	43.00	2.16	2.15	1.95
Sept.	39.00	40.00	45.00	2.48	2.25	2.25
Oct.	39.50	39.50	45.00	2.43	2.40	2.50
Nov.	37.75	37.75	45.00	2.37	2.40	2.50
Dec.	36.50	36.50	45.00	2.32	2.35	2.50
1923—						
Jan.	37.50	37.50	48.50	2.36	2.37	2.45
Feb.	39.40	39.40	50.00	2.51	2.54	2.35
Mar.	44.00	44.00	50.00	2.70	2.70	2.50
April	46.30	45.60	50.00	2.82	2.80	2.60
May	45.00	45.00	50.00	2.82	2.80	2.60
June	43.50	43.50	51.00	2.80	2.75	2.60
July	42.50	42.50	51.00	2.69	2.70	2.60
Yearly averages						
1913.	25.56	26.35	28.39	1.51	1.59	1.45
1914.	20.08	20.84	25.50	1.20	1.27	1.07
1915.	23.14	23.46	28.28	1.37	1.32	1.24
1916.	45.02	45.10	57.58	2.57	2.59	2.31
1917.	71.15	75.87	80.23	4.06	4.09	3.78
1918.	47.30	50.80	57.00	3.71	3.50	3.50
1919.	40.52	43.77	53.11	2.94	2.80	2.69
1920.	57.79	65.21	70.00	4.35	4.13	3.65
1921.	34.60	35.33	45.67	2.23	2.30	2.13
1922.	34.10	34.54	40.50	2.06	2.04	1.94

WAGE SCALE AVERAGES

	Bar Iron.	Sheets.	Tin Plate.
Jan.-Feb. ..	2.25	3.30	4.80
Mar.-April .	2.35	3.40	4.80
May-June ...	2.50	3.60	5.20

ing against 322 on July 1st, thus there was a net decrease of 25 furnaces, 27 having been blown-out and two blown-in.

The greatest decrease in production was by steel companies' furnaces 18 stacks having been blown-out in July, or twice the number of merchant furnaces that were blown-out or banked. The indication is that there will be a further decrease in output of pig iron in August.

Including charcoal iron, production of pig iron in July was at the rate of 43,545,000 tons a year. In June, production of all furnaces was at the rate of 44,850,000 tons a year and in May 45,770,000 tons a year.

STEEL PRODUCTION

The American Iron & Steel Institute estimates the total production of steel ingots by all steel companies in July to have been 3,515,966 tons which is equivalent to an average daily rate of 140,639 tons for the 25 active days of the month. The steel companies which report to the Institute made 95.35% of the total production in 1922 and in July —last month—produced 3,352,474 tons, equivalent to a daily rate of 134,099 tons. These companies last month had an output of 2,660,094 tons of open hearth, 680,884 tons of Bessemer and 11,496 tons of other steel.

The United States Steel Corporation operating at 85% capacity last month produced ingots at the rate of 62,050 tons a day or a total of 1,551,250. Independent companies, utilizing a little less than 81.50% capacity, produced at a daily rate of 78,588 tons and a total of 1,964,716 tons. The industry as a whole employed a little over 82.7% of total capacity.

In June when the Steel Corporation utilized 92.5% of capacity it had a total production of 1,755,650 tons of crude steel which was at the rate of 67,525 tons a day. Independent companies are indicated to have produced 1,993,290 tons a day in June which was at a daily rate of 76,663 tons when utilizing about 79.50% of total capacity.

All of the steel companies in July produced ingots at the rate of 43,598,090 tons a year whereas the June rate was 44,698,280 tons a year. The highest rate of record obtained was in April, when production was at the rate of 48,910,560 tons a year.

STEEL MAKING PIG IRON AVERAGES

Bessemer and basic pig iron averages compiled by Messrs. W. P. Snyder & Company from sales in the valley market of 1,000 tons and over.

	Bessemer.			Basic.		
	1923.	1922.	1921.	1923.	1922.	1921.
Jan.	27.50	19.50	32.00	25.58	18.19	30.00
Feb.	28.02	19.50	27.00	26.38	17.75	25.00
Mar.	30.26	19.39	26.20	30.02	18.00	24.50
April	31.00	20.54	25.00	31.00	19.30	22.50
May	30.10	24.40	24.25	28.06	24.91	21.87
June	28.50	25.00	23.00	26.57	25.00	20.70
July	26.70	25.00	20.88	24.75	24.56	18.80
Aug.	.....	28.67	20.00	.....	25.41	18.33
Sept.	.....	33.50	20.00	.....	32.93	19.25
Oct.	.....	33.50	20.00	.....	30.00	19.00
Nov.	.....	31.75	20.00	.....	27.60	19.00
Dec.	.....	28.10	20.00	.....	24.57	18.69
Year	.....	25.75	23.19	.....	24.02	21.47

All prices are f.o.b. valley furnace; freight, August 26, 1920, $1.96; August 1, 1922, $1.77.

STEEL CORPORATION BOOKINGS

Changes in unfilled tonnage with shipments and bookings estimated in percentage of capacity.

	Shipments.	Bookings.	Difference.	Difference.
1922.				
Jan.	47	45	— 2	— 26,736
Feb.	57	49	— 8	— 100,609
Mar.	65	90	+25	+ 353,079
April ...	70	115	+45	+ 602,769
May	75	86	+11	+ 157,311
June	75	103	+28	+ 381,303
July	75	86	+11	+ 140,630
Aug.	67	79	+12	+ 173,944
Sept. ...	67	121	+54	+ 741,502
Oct.	76	91	+15	+ 210,680
Nov.	81	76	— 5	— 62,045
Dec.	80	73	— 7	— 94,539
Jan., 1923	86	97	+11	+ 165,073
Feb.	88	117	+29	+ 373,213
Mar.	89	97	+ 8	+ 119,343
April ...	93	84	— 9	— 114,823
May	93	72	—21	— 307,158
June	92	49	—43	— 595,090

Unfilled Orders.

At end of the quarter, last three figures omitted.

	First.	Second.	Third.	Fourth.
1910	5,402	4,257	3,158	2,674
1911	3,447	3,361	3,611	5,084
1912	5,304	5,807	6,551	7,932
1913	7,468	5,807	5,003	4,282
1914	4,653	4,032	3,787	3,836
1915	4,255	4,678	5,317	7,806
1916	9,331	9,640	9,522	11,547
1917	11,711	11,383	9,833	9,381
1918	9,056	8,918	8,297	7,379
1919	5,430	4,892	6,284	8,265
1920	9,892	10,978	10,374	8,148
1921	6,284	5,117	4,560	4,268
1922	4,494	5,635	6,691	6,746
1923	7,403	6,386	....	....

In the first seven months of this year all of the steel companies produced 26,729,209 tons of which 25,486,301 tons were made by companies which report to the American Iron & Steel Institute. The latter is made up of 20,159,253 tons of open hearth, 5,236,330 tons of Bessemer and 90,736 tons of all other kinds of steel.

STEEL ADVANCES

The finished steel price structure is intact, more than three month after the last advances occurred, more than four months after coke and scrap started to decline, and fully three months after pig iron started to decline. This divergence may seem remarkable, but it is quite in keeping with the many similar experiences of the past and is also in keeping with the logic of the situation. Mills do not reduce prices to create business for they know that business cannot be created in that way They reduce or cut prices when there is business to be secured, but more mills seeking the business than it will fill. Of late there has not been much new business and some of that business might have been frightened off had price cutting started. Furthermore, while some mills have much more business on books than others, all have some, and cutting prices tends to undermine that business. By price cutting a mill might destroy more business, already on books, than it gained by the cutting.

The common expectation is that August will be dull as to new demand, as July has been, and that September will see heavier demand. If there is little increase in demand prices may still

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IMPORTANT STEEL PRICE CHANGES

At the end of 1920 prices of independent steel producers had declined to Industrial Board schedule of Mar. 21, 1919, to which U. S. Steel Corporation had meanwhile adhered. These prices are given under date of Jan. 1, 1921, subsequent changes being in open market. Only the more important changes are listed.

BARS.

Jan. 1, 1921	2.35	Mar. 29	1.50
Feb. 11	2.00	May 17	1.60
April 13	2.10	July 26	1.70
June 24	2.00	Aug. 9	1.80
July 5	1.90	Aug. 25	1.90
July 26	1.75	Sept. 27	2.00
Sept. 9, 1921	1.65	Jan. 31, 1923	2.10
Sept. 27	1.60	Feb. 16.	2.20
Nov. 9	1.55	Feb. 23,	2.25
Dec. 19	1.50	April 2,	2.35
Feb. 18, 1922	1.40	April 27	2.40

PLATES

Jan. 1, 1921	2.65	Nov. 9	1.50
Feb. 10	2.40	Feb. 18, 1922	1.40
Feb. 17	2.25	April 5	1.50
Feb. 23	2.10	May 25	1.60
April 13	2.20	July 26	1.70
June 10	2.00	Aug. 9	1.80
July 15	1.90	Aug. 25	2.00
July 26	1.85	Jan, 19, 1923	2.10
Aug. 25, 1921	1.80	Feb. 9	2.20
Sept. 2	1.75	Feb. 23	2.25
Sept. 9	1.65	Mar. 21	2.35
Sept. 27	1.60	April 2,	2.45
Oct. 27	1.55	April 27	2.50

SHAPES

Jan. 1, 1921	2.45	Dec. 21	1.50
Feb. 11	2.25	Feb. 18, 1922	1.40
Feb. 17	2.20	Mar. 9	1.50
Feb. 28	2.10	May 25	1.60
April 13	2.20	July 26	1.70
June 24	2.00	Aug. 9	1.80
July 22	1.90	Aug. 25	2.00
July 26	1.85	Jan. 19, 1923	2.10
Aug. 25, 1921	1.80	Feb. 16	2.20
Sept. 2	1.75	Feb. 23	2.25
Sept. 9	1.70	Mar. 21	2.35
Sept. 26	1.65	April 2	2.45
Sept. 27	1.60	April 27	2.50

STEEL PIPE

Jan. 1, 1921	57½%	Sept. 16	68½%
Mar. 24	58½%	Dec. 16	71%
April 7	59½%	Aug. 23, 1922	68%
April 13	62½%	Oct. 19, 1923	66%
July 9, 1921	64½%	Feb. 3, 1923	64%
		April 19	62%

WIRE NAILS

Jan. 1, 1921	3.25	Dec. 9.	2.75
Feb. 17	3.10	Dec. 21	2.50
Mar. 4	3.00	Feb. 21, 1922	2.40
April 13	3.25	Aug. 30	2.60
June 1	3.00	Sept. 27	2.70
July 9, 1921	2.75	Feb. 1, 1923	2.80
Sept. 12	2.90	Mar. 26.	2.90
		April 20,	3.00

BLACK SHEETS

Jan. 1, 1921	4.35	Sept. 22	3.00
Feb. 11	4.15	Nov. 1	2.90
Mar. 8	4.00	Nov. 25	3.00
Mar. 17	3.85	April 7, 1922	3.15
April 13	4.00	Aug. 14	3.35
July 5	3.50	Feb. 23, 1923	3.60
July 26, 1921	3.25	Mar. 27,	3.75
Aug. 1	3.00	April 3,	4.00
Aug. 25	2.75	April 26	3.85

TIN PLATE

Jan. 1. 1921	7.00	Mar. 21, 1922	4.60
April 13	6.25	April 5	4.65
June 7	6.00	April 24	4.70
June 14	5.75	May 17	4.75
Aug. 1, 1921	5.25	Feb. 26, 1923	5.00
Sept. 15	5.00	Mar. 23	3.00
Sept. 19	4.75	Mar. 27,	5.50

BLUE ANNEALED SHEETS

Jan. 1, 1921	3.55	Sept. 22	2.50
Feb. 11	3.35	Nov. 1	2.25
Feb. 16	3.20	April 7, 1922	2.40
Mar. 8	3.00	Aug. 14	2.50
April 13	3.10	Sept. 20	2.60
June 10	2.90	Nov. 23,	2.50
July 6, 1921	2.65	Feb. 23, 1923	2.75
Aug. 2	2.40	Mar. 23	3.00
Aug. 16	2.25	April 3,	3.25
		April 26	3.00

GALVANIZED SHEETS

Jan. 1, 1921	5.70	Aug. 25	3.75
Feb. 11	5.55	Sept. 22	4.00
Feb. 16	5.35	Nov. 1	3.90
Feb. 24	5.25	Nov. 25	4.00
Mar. 8	5.10	April 7, 1922	4.15
Mar. 17	5.00	Aug. 14,	4.35
June 22	4.75	Feb. 23, 1923	4.75
July 5, 1921	4.50	Mar. 20	5.00
July 22	4.25	April 3,	5.25
Aug. 2	4.00	April 26	5.00

STEEL INGOT OUTPUT

Monthly production of steel ingots, January, 1922, To December, 1922. Reported by companies which made 84.15% of the steel ingot production in 1922.

Months 1922.	Open-hearth	Bessemer	All Other	Monthly Production Companies Reporting	Calculated monthly production all Companies	No. of Working days	Approximate daily production all Companies.
January	1,260,809	331,851	822	1,593,482	1,891,857	26	72,764
February	1,395,835	348,571	616	1,745,022	2,071,772	24	86,324
March	1,918,570	451,386	795	2,370,751	2,814,667	27	104,247
April	1,997,465	445,939	1,109	2,444,513	2,902,240	25	116,090
May	2,214,774	494,893	1,474	2,711,141	3,218,794	27	119,215
June	2,143,708	487,851	2,918	2,634,477	3,127,775	26	120,299
July	2,020,572	464,047	2,485	2,487,104	2,952,806	25	118,112
August	1,807,310	404,379	2,893	2,214,582	2,629,256	27	97,380
September ..	1,911,147	460,127	2,505	2,373,799	2,818,261	26	108,395
October	2,352,207	518,010	2,198	2,872,415	3,410,265	26	131,164
November ...	2,360,903	525,945	2,449	2,889,297	3,430,309	26	131,935
December	2,241,104	536,214	2,572	2,779,890	3,300,416	25	132,017
Total	23,624,404	5,469,213	22,836	29,116,453	34,568,418	310	111,511

Monthly production of steel ingots, January, 1923, to July, 1923. Reported for 1923 by companies which made 95.35% of the steel ingot production in 1922.

Months 1923.	Open-hearth	Bessemer	All Other	Monthly Production Companies Reporting	Calculated monthly production all Companies	No. of Working days	Approximate daily production all Companies.
January	2,906,892	728,270	9,467	3,664,629	3,822,369	27	141,569
February	2,613,564	669,903	10,797	3,294,264	3,454,918	24	143,955
March	3,046,309	779,525	12,841	3,858,675	4,046,854	27	149,883
April	2,974,579	772,485	13,933	3,760,997	3,944,412	25	157,776
May	3,136,558	847,418	16,719	4,000,695	4,195,800	27	155,400
June	2,821,239	737,845	15,483	3,574,567	3,748,890	26	144,188
Six mos...	17,499,141	4,555,446	79,240	22,133,827	23,213,243	156	148,803
July	2,660,094	680,884	11,496	3,352,474	3,515,966	25	140,639

FINISHED STEEL PRICES.

(Averaged from daily quotations, f. o. b. Pittsburgh.)

	Shapes.	Plates.	Bars.	Pipe	Wire.	Wire Nails.	Grooved Steel Skelp.	Sheets — Black.	Sheets — Galv.	Sheets — Blue Annld.	Tin plate.	Comp. Fin. Steel.
Jan. 1922	1.50	1.50	1.50	71	2.25	2.50	1.50	3.00	4.00	2.25	4.75	2.16
Feb.	1.46	1.46	1.46	71	2.22	2.47	1.46	3.00	4.00	2.25	4.75	2.14
Mar.	1.41	1.39	1.41	71	2.25	2.40	1.40	3.00	4.00	2.25	4.61	2.09
April	1.50	1.49	1.50	71	2.25	2.40	1.50	3.12	4.12	2.37	4.66	2.16
May	1.52	1.52	1.55	71	2.25	2.40	1.55	3.15	4.15	2.40	4.72	2.18
June	1.60	1.60	1.60	71	2.25	2.40	1.60	3.15	4.15	2.40	4.75	2.22
July	1.62	1.62	1.62	71	2.25	2.40	1.62	3.15	4.15	2.40	4.75	2.23
Aug.	1.82	1.82	1.80	70⅛	2.26	2.41	1.80	3.27	4.27	2.46	4.75	2.36
Sept.	2.00	2.00	1.92	68	2.37	2.62	2.10	3.35	4.35	2.60	4.75	2.51
Oct.	2.00	2.08	2.00	66⅞	2.45	2.70	2.05	3.35	4.35	2.70	4.75	2.57
Nov.	2.00	2.00	2.00	66	2.45	2.70	2.00	3.35	4.35	2.55	4.75	2.57
Dec.	2.00	2.00	2.00	66	2.45	2.70	2.00	3.35	4.35	2.50	4.75	2.57
Jan. 1923	2.04	2.04	2.00	66	2.49	2.70	2.00	3.35	4.35	2.50	4.75	2.59
Feb.	2.16	2.18	2.16	64¼	2.61	2.80	2.16	3.40	4.49	2.55	4.78	2.72
Mar.	2.29	2.29	2.25	64	2.70	2.82	2.30	3.63	5.00	2.95	5.09	2.83
April	2.46	2.46	2.36	63¼	2.70	2.94	2.40	3.97	5.20	3.20	5.50	2.99
May	2.50	2.50	2.40	62⅝	2.75	3.00	2.42	3.85	5.10	3.15	5.50	3.03
June	2.50	2.50	2.40	62	2.75	3.00	2.40	3.85	5.00	3.10	5.50	3.03
July ...	2.50	2.50	2.40	62	2.75	3.00	2.40	3.85	5.00	3.00	5.50	3.03
Yearly averages:												
1913	1.42	1.41	1.38	79¾	1.50	1.70	1.39	2.20	3.28	1.68	3.56	1.72
1914	1.16	1.14	1.15	80	1.37	1.57	1.17	1.89	2.87	1.38	3.35	1.52
1915	1.30	1.29	1.31	79¼	1.48	1.66	1.27	1.93	3.85	1.49	3.19	1.63
1916	2.50	2.82	2.48	70⅞	2.45	2.53	2.34	3.06	4.85	2.99	5.34	2.80
1917	3.66	5.21	3.49	52⅛	3.48	3.56	3.95	6.29	8.21	6.15	7.85	4.46
1918	2.99	3.24	2.89	51⅛	3.25	3.50	2.89	4.98	6.24	4.23	7.73	3.79
1919	2.53	2.71	2.43	56¾	3.06	3.31	2.51	4.43	5.78	3.63	7.08	3.32
1920	2.99	3.20	2.99	55⅝	3.40	3.67	3.00	5.85	7.39	5.06	7.29	3.63
1921	1.07	1.96	1.89	63¾	2.77	2.98	1.96	3.54	4.57	2.74	5.83	2.69
1922	1.70	1.71	1.70	69½	2.31	2.51	1.72	3.19	4.19	2.43	4.73	2.31

hold. If there is a moderate demand price cutting is likely to be induced, particularly if the buyers make a strong stand for reductions, as it is understood may have already determined to do. If the demand is very heavy, it will sustain the market. It seems altogether improbable that demand can fall in the last named category, for the rule in steel is that one buying movement does not follow another without an intermediate liquidation in price. That rule was broken this year, for last year's buying movement came to an end and the market was dull and unpromising in November, the revival coming as a surprise to most observers. Steel prices advanced from early March to the end of September, last year, by about $10.00, a net ton, there being then a stationary market for more than three months, advances being resumed about the middle of January, and from then to the end of April there was a further advance averaging about $9.00 a ton, making $19.00 in all. That the rule of one buying movement not being followed directly by another was broken makes it all the more improbable that it can be broken again.

SEMIFINISHED STEEL

The market on slabs, billets and sheet bars ruled at $42.50 throughout July. Some third quarter contracting had been done at $45.00 and some at $42.50, and without much murmur the sellers at $45.00 readjusted to $42.50. The situation being left without new inquiry of any importance, but with much business on books to be protected, the mills naturally held $42.50 very firmly throughout the month. The average buyer had no inclination or reason to apply pressure on the price, as a decline would tend to undermine the market prices of his finished products.

HEAVY ROLLED STEEL

In bars, shapes and plates the market ruled steady during July at 2.40c for bars and 2.50c for shapes and plates. In all three products there was a moderate, but only a moderate, amount of new buying. Plates made perhaps the best showing, as there was much demand for tanks for oil storage.

Delivery promises in these three products greatly shortened. In April a familiar delivery promise on new business

Allegheny Steel
and
Allegheny Iron

SHEETS BOILER TUBES
PLATES WASHERS
STEEL CASTINGS
Hot and Cold Pressed Stampings

ALLEGHENY STEEL COMPANY
PITTSBURGH, PA.

SOLICITING AGENTS
501 Fifth Ave., New York
1436 Dime Bank Bldg., Detroit, Mich.
Steel Sales Corporation, 129 South Jefferson Street, Chicago.

was August and in July one could also secure August delivery. This does not mean that mills booked on business meanwhile. It means simply that gaps, perhaps small gaps, appeared in rolling schedules, and the new business offered fell short of being sufficient to fill those gaps.

FABRICATED STEEL.

July orders for fabricated structural steel were again very close to 100,000 tons. The bulk of the business was transacted in the last two weeks of the month when about 55,000 tons were placed for various projects. In the first half of the month there was a sharp falling off in sales. Some information received in the last few days indicate that the total contracts placed during July were about 111,000 tons, equivalent to about 50% of capacity of the reporting shops.

June orders according to the Bureau of the Census were a little less than 113,000 tons, being the smallest of any month since November, 1922. July orders were probably less than those in November 1922 and the smallest monthly orders in over two years.

Oil companies were responsible for almost half of the tonnage taken in July, contracts for tanks alone amounting to 55,350 tons. Manufacturing plants placed orders for about 13,500 tons. Railroad bridge work called for between 6,000 and 7,000 tons. Highway bridges called for between 2,000 and 3,000 tons. Municipal works including schoolhouses required between 10,000 and 11,000 tons. Other building work, including apartment houses, office buildings and loft buildings called for between 9,000 and 10,000 tons.

Export orders placed for several thousand tons and orders for about 8,000 tons placed on the Pacific coast may bring the July tonnage to a little over that reported by the overnment in June. More projects in building work in the central west have come before the fabricators in the last few weeks, and outside of bridge work, probably, 50,000 to 60,000 tons are pending in the east and the west. It is notable that bridge shops became more aggressive for orders in July and very low prices were made on delivered and erected work in the east.

Among the larger contracts now pending are 10,000 to 12,000 tons for the Palmer house in Chicago, 7,500 tons for the Ford Motor Company building at St. Paul, 2,800 tons for a pier shed in New York, 3,000 tons for a high school in Brooklyn and 6,000 for an office building in the Grand Central area, New York.

Tonnage booked each month by 175 identical firms, with a capacity of 229,575 tons per month, is shown below, together with the per cent. of shop capacity represented by these bookings. For comparative purposes, the figures are also prorated to obtain an estimated total for the United States on a capacity of 250,000 tons per month.

1922	Actual Tonnage booked	per cent. of capacity	Estimated Total bookings
April ...	200,588	87	217,500
May	184,638	81	202,500
June	168,498	73	182,500
July	157,631	69	172,500
Aug.	156,011	68	170,000
Sept. ...	146,146	64	160,000
Oct.	132,450	58	145,000
Nov.	111,794	49	122,500
Dec.	138,024	60	150,000
1923—			
Jan.	172,415	75	187,500
Feb.	183,938	80	200,000
March ...	218,997	95	237,500
April	184,884*	81	202,500
May	130,929†	58	145,000
June	112,786‡	51	127,500

* Reported by 166 firms with a capacity of 228,455 tons.

† Reported by 157 firms with a capacity of 225,790 tons.

‡ Reported by 152 firms with a capacity of 223,595 tons.

Percentage of fabricated orders to total shop capacity.

	1922	1921	1920	1919	1918	1917
Jan.	40%	18%	75%	12%	53%	61½
Feb.	43½	14	95	12½	55½	59
Mar.	77	29	83½	17½	47	68
April	89	31	68	24½	64	61
May	81	28	61½	49	60	56½
June	73	37	50	65	56	47½
July	69	33½	50	74	116½	41½
Aug.	68	33	40	78½	57	38
Sept.	64	48	43	78½	60	29
Oct.	58	54	25½	77½	43	61½
Nov.	49	55	27½	69	27	77
Dec.	58	40	26	85	29	114
Av.	64.2	35	53¾	53½	55½	59½

1923—	
January	75
February	80
March	95
April	81
May	58
June	51
Monthly average	73.3

TUBULAR GOODS

The predicted slump in drilling, on account of low prices for oil and increases in stocks, did not occur. It appears that in most fields there has been competition, each company striving to get out the oil before others should get it. On the whole there has been merely a moderate decrease in demand for oil country goods. In merchant pipe consumption is no doubt substantially as heavy as at any time. In each class of goods jobbers have lost the ambition to build up stocks, but as the ambition had not been satisfied there has been little decrease in demand upon mills through jobbers liquidating stocks. Boiler tube demand, which had been very heavy, has decreased somewhat.

SHEETS

Many of the independent sheet mills closed completely for the first fortnight of July, the tonnage men receiving a vacation which they desired, while shipping instructions had an opportunity to pile up, and in the remainder of the month the sheet industry ran fairly well probably at 85 or 90% of capacity in the closing days of the month.

The American Sheet & Tin Plate Company spent much of July in shipping tonnage due on second quarter contracts, and is likely to close the present quarter nearly a month behind. Some independents had kept their order books relatively clear and thus it was easy to buy during July for prompt shipment.

Late in the month two or three mills were shading black sheets $2.00 a ton, but this did not affect the general situation. No shading was reported in blue annealed or galvanized: The market is quotable at 3.00c for blue annealed, 3.85c for black and 5.00c for galvanized.

TIN PLATE

The one finished steel product in which early deliveries cannot be easily secured is tin plate. Contracts were made for the current quarter, not for the half year as usual. The contracts were not heavy relative to capacity, but all buyers have been requiring full deliveries on contracts and mills have been unable to produce as much as expected. The difficulty has been almost wholly in shortage of skilled labor, at the hot mills. Exerting themselves strenuously the tin plate mills were unable in July to produce a tonnage equal to 85% of a fair rating of capacity, even allowing in the rating for the hot weather.

Tin plate production in 1923 will probably make a new record, but only by a small margin. As the record to be broken was made in 1917, six years ago, the remarkable thing would not be the making of a new record, but its taking so long to do so.

WIRE PRODUCTS

Earlier delivery promises have developed in wire products, but the situation is not yet an easy one as to nails. The light demand for fencing is not particularly suggestive since it is more or less between seasons. Prices ruled firm during July at 2.75c for plain wire and $3.00 for nails.

SCRAP

Scrap prices continued to decline in all markets during July. The downward turn began late in March and since then heavy melting steel in the Pittsburgh district has lost about $10.00 a ton, Philadelphia losing a little less and Chicago less still. At the end of July a better tone was seen in the market.

IRON AND STEEL SCRAP PRICES

	Heavy melting steel.			No. 1 cast.	
	Pitts.	Phila.	Chic.	Pitts.	Chic.*
Jan., '22	14.67	11.45	11.70	16.60	12.75
Feb. ...	14.25	11.50	11.75	16.25	12.80
Mar. ...	25.35	11.75	12.50	16.25	13.50
April ..	16.60	14.25	13.80	17.25	14.70
May ...	17.25	14.70	14.95	18.25	15.80
June ...	17.25	14.50	14.80	18.60	15.50
July ...	16.85	14.40	15.40	19.25	16.00
Aug. ...	17.45	14.75	16.00	19.35	17.25
Sept. ..	20.00	17.00	17.50	21.75	18.60
Oct. ...	21.00	18.35	18.65	24.00	19.60
Nov. ...	20.50	16.65	17.60	23.20	18.50
Dec. ...	20.40	16.70	17.50	22.75	18.35
Year ..	17.63	14.67	15.18	19.46	16.11
Jan., '23	22.00	20.85	19.30	23.50	20.40
Feb. ...	23.35	21.10	20.00	24.15	22.50
Mar. ...	25.30	35.25	23.45	26.25	24.75
April ..	25.00	24.00	22.25	27.15	23.20
May ...	22.50	20.25	19.50	26.25	20.75
June ...	21.10	18.30	18.25	24.40	18.85
July	18.35	17.10	17.20	21.85	18.15

* Per net ton.

Port of New York's 40,000,000 square feet of warehouse storage space filled, while many other waterfront warehouses are only 40% to 50% filled, due to decrease in buying. At same time, modest "hand-to-mouth" buying of imports has resulted in small volume of imports being stored in waterfront warehouses. Turning point expected this month.

FERRO-ALLOYS

As a result of the continued light demand for ferromanganese British producers on July 10th cabled a reduction of $7.50 a ton effective at once, that is, the asking price was reduced from $125.00 per ton seaboard to $117.50 seaboard, duty paid, the net price to British producers therefore, being $84.00. Previously, concessions of $5.00 a ton had actually been made from the quarter price of $125.00 but the reduction in the contract price was not general until July 10th. Throughout the month buying by American consumers of either home or foreign manganese, continued light as requirements generally for the year had been covered in the first half of the year. The market weakened as steel output decreased gradually in May and June.

The July production of ferromanganese in this country was approximately 26,230 tons which was the largest of any month this year. The average monthly production for the first six months was about 20,000 tons, spiegeleisen output in July was 12,850 tons and the average monthly output was 10,000 tons for the first six months of the year. Imports of ferromanganese in June, 11,786 gross tons, were the largest of any month during the first half of the year.

Spiegeleisen also was extremely dull and easier in tone but prices were unchanged at $45.00 furnace for 19 to 21% and $44.00 for 16 to 19%. Earlier in the month, one carload of British spiegeleisen sold as high as $51.00 seaboard duty paid.

Sales of 50% ferro silicon were small both in number and tonnage and with some increase in offerings, prices declined sharply. Toward the close of the month carload lots sold at $84.00 to $85.00 delivered and round lots were quotable at $82.50. Specifications against contracts were the mainstay of producers but there was less pressure for shipments as compared with the two or three preceding months reflecting the decreased production and consumption of steel products.

Two developments which helped to cause a decline in the price of ferromanganese at home and abroad was the offering of speculative lots of domestic which had been sold earlier in the year at $110.00 per ton. Some of this alloy which had not been specified against, brought about resales at considerably under the market. There were also some resale lots of British manganese disposed of at several dollars per ton under the apparent level of the market.

Few, if any, transactions in manganese ore came to the surface, but Indian ore was nominally quotable at 40 cents per unit here, June imports were 36,138 tons. Some little business was done in tungsten ore toward the close of the month, Chinese wolframite being quoted at $8.25 to $8.50 per unit while high grade was bought as high as $9.00 a unit. Ferro tungsten was a little firmer at 88 to 90 cents per pound and tungsten powder from 95 cents to $1.00 per pound. There was less business in ferro chromium and ferro vanadium. Bessemer ferro silicon declined $5.00 a ton and silvery iron also receded $5.00 a ton late in the month.

COAL

The industrial coal market of the United States is still in a comatose state, and, although a large volume of coal is moving, there is no outward sign of activity; the various spot quotations are extremely low; one medium states that "lethargy continues to rule the bituminous market" and that neither industrials or domestic consumers are buying this type of fuel in sufficient quantities to have any bolstering effect on prices. Thus, conditions on August 1st are much the same as they were on July 1st. Some wholesalers were of the opinion that July 1st would be the turning point, and that after the holiday celebration, the trade would show unmistakable signs of revival. This not having materialized, however, they are now satisfied that it may not occur until some time in the early Fall, if at all.

Right now, the chance that hangs by a single, slender thread is the one that a revival in the demand for bituminous coal is sure to take place if there is a strike in the anthracite fields beginning on September 1st, and those who are hazardous enough to venture a guess as to the future of the soft coal market, point to that possibility as the one most likely to rejuvenate the trade. Otherwise, it appears that shipments on contracts are going to take care of the industrial requirements for some time to

come, and as industrial buyers in the spot market now are looking only for the cheapest coals, there is no evidence of a tendency to submit to price advances in the near future. Anxiety over a possible strike in the hard coal regions has not as yet had any noticeable effect on the demand for domestic substitutes such as smokeless and other widely distributed soft coals.

One feature of the month of July was the heavy shipment of high volatile West Virginia coals from Hampton Roads to Canada, but that was largely on account of the strike of Nova Scotia miners, which is now in prospect of settlement. Other branches of the export trade are comparatively quiet. In New York, Philadelphia and Baltimore, bituminous wholesale houses show many signs of inactivity. Business in the bituminous market is practically at a standstill in New England, and sellers with coal on their hands are at the mercy of buyers just now.

New demand for Pennsylvania bituminous is meagre, and lower prices are being named. All in all, the market during the first few days of August was about as lifeless as it had been for months.

Lighter receipts of smokeless coals in the vicinity of Chicago have cleared the situation there somewhat, although the prices are generally about 75 cents below what they were a month ago. These coals at the West Virginia mines aer selling at $5.50 to $6.00 net ton for prepared sizes, and $2.75 to $3.25 for run of mine. Throughout the middle west, the mines are down to bed-rock and only producing sufficient coal for actual current requirements, which, in some cases puts them on an operating basis of only 50% of capacity.

In the West Virginia fields, there is more low volatile coal coming from the mines than the market can absorb, and each curtailment in output seems to be followed by further recessions in demand. Production losses because of "no market" amount to 25% in some fields. Another factor in cutting down production is the fact that many contract quotas have been filled, especially at the lakes. Transportation conditions are better now than they have been for some time, in view of the smaller number of mines operating and the quick return of empties to the mines.

The outstanding feature of the coal trade in July was the release of the report by the United States Coal Commission, which, while more or less preliminary, made several suggestions concerning the control of anthracite coal by some Federal body, although further consideration of all phases will be given in the final report to be made some time in the Fall. Therefore, there is no existing power that can force the two sides of the anthracite controversy together, nor can anybody, Federal or otherwise, demand that an agreement be reached. The negotiations were definitely broken off on July 27th, and unless the two sides are brought together again before September 1st, there is amost certain to be an anthracite suspension on that date. No such conciliatory moves have been made as yet.

During July also, the Federal Fuel Distributor reported that a recent survey showed that on June 1st, commercial consumers had in storage approximately 41,000,000 tons of soft coal, an increase of 5,000,000 tons over March 1st of this year. Bituminous production for the country has been going along at the rate of over 10,000,000 net tons weekly, or approximately 550,000,000 net tons per year, so that, while the spot market in all sections is quiet, it would appear that there is a substantial volume of coal moving on contract. The railroads are said to be well fortified with heavy stocks.

In central Pennsylvania, the best grades of coal can now be bought at prices ranging from $2.00 to $3.00 net ton at the mines, but the latter figure is infrequent, and the average spot range for good grades is about $2.00 to $2.50. At the New York piers, these same coals are selling from $5.00 to $5.50 gross ton, f. o. b.

CONNELLSVILLE COKE

The coke market softened somewhat in July, prices having previously gotten within a reasonal distance of cost. Late in the month some lots of spot furnace coke were sold at $4.00, or below cost of production. The operators were curtailing production continuously during the month, but did not fully keep pace with the blowing out of furnaces. Foundry coke opened the month at $5.25 to $5.75 and closed it at $5.25 to $5.50.

EXPORTS OF IRON AND STEEL PRODUCTS FROM THE U. S.

Value of tonnage and non-tonnage.

	*1923	*1922	1921
Jan.	$14,866,090	$15,141,083	$137,803,395
Feb.	14,865,590	12,950,603	101,205,061
Mar.	14,543,155	18,836,718	67,870,739
April	20,146,346	17,549,618	49,609,605
May	22,681,660	17,749,475	41,365,886
June	21,242,193	18,649,816	39,975,035
July	.....	14,611,858	27,639,787
Aug.	.....	13,963,749	27,647,816
Sept.	.....	14,380,851	26,740,228
Oct.	.....	14,626,411	29,706,437
Nov.	.....	14,249,434	28,543,142
Dec.	.....	16,668,116	29,502,448

* Excluding machinery.

1922..	$ 188,841,433	1916..	$871,372,322
1921..	607,427,146	1915..	390,897,123
1920..	1,112,904,802	1914..	199,861,684
1919..	968,575,142	1913..	293,934,160
1918..	1,035,291,736	1912..	289,128,420
1917..	1,240,984,979	1911..	249,656,411

Tonnage Lines.

(Gross tons.)

	1923	1922	1921	1920
Jan.	123,190	160,920	547,394	333,601
Feb.	133,902	133,975	393,328	308,185
Mar.	163,920	208,843	230,635	417,216
April	177,471	198,830	162,592	395,120
May	203,389	230,062	104,072	420,359
June	173,183	212,295	119,081	402,707
July	.....	157,169	86,523	458,866
Aug.	.....	145,640	75,827	431,484
Sept.	.....	129,475	95,169	409,200
Oct.	.....	132,924	106,582	452,015
Nov.	.....	127,782	122,290	434,297
Dec.	.....	150,170	134,415	498,765

Yearly totals.

1922	1,986,297	1916	6,105,881
1921	2,213,042	1915	3,532,606
1920	4,961,851	1914	1,549,554
1919	4,239,837	1913	2,745,535
1918	5,338,037	1912	2,947,596
1917	6,441,760	1911	2,187,724

IMPORTS OF IRON ORE INTO THE UNITED STATES.

	1923	1922	1921	1920
Jan.	205,532	19,433	82,424	88,881
Feb.	143,702	10,016	47,466	100,105
Mar.	166,626	12,013	26,483	108,643
April	171,459	2,710	35,645	88,670
May	263,792	29,707	58,704	103,325
June	277,380	133,817	8,424	104,364
July	.....	166,711	7,040	28,846
Aug.	.....	160,173	24,570	174,169
Sept.	.....	127,838	4,954	73,675
Oct.	.....	*123,207	5,838	141,026
Nov.	.....	165,648	12,065	139,854
Dec.	.....	167,221	2,155	117,898

Yearly totals.

1922	1,140,463	1916	1,325,736
1921	315,768	1915	1,341,281
1920	1,273,456	1914	1,350,588
1919	476,461	1913	2,594,770
1918	787,468	1912	2,104,576
1917	971,663	1911	1,811,732

* Sept. 22 to Oct. 31.

BITUMINOUS COAL PRODUCTION

(Net tons of 2,000 lbs.)

	1923.	1922.	1921.
Jan. ...	50,178,000	37,604,000	40,270,000
Feb. ...	42,160,000	40,980,000	30,851,000
Mar. ...	46,802,000	50,167,000	30,392,000
April ..	42,564,000	15,700,000	27,553,000
May ...	46,076,000	20,601,000	33,330,000
June ..	45,490,000	22,309,000	33,896,000
July ...	44,600,000	17,003,000	30,385,000
Aug. ...	.....	27,358,000	34,538,000
Sept. ..	.....	39,510,000	35,127,000
Oct. ...	.....	45,141,000	43,733,000
Nov. ...	.....	45,303,000	36,020,000
Dec. ...	.....	44,500,000	30,975,000
Total	317,870,000	405,944,000	407,000,000

CONNELLSVILLE COKE.

Spot for prompt, per net ton f.o.b. ovens.

	— Furnace —			— Foundry —		
	1923.	1922.	1921.	1923.	1922.	1921
Jan.	8.30	2.85	5.10	9.25	4.00	6.75
Feb.	7.30	3.10	4.80	8.50	4.15	6.15
Mar.	7.35	3.38	4.43	8.60	4.50	5.63
Apr.	6.25	4.44	3.60	7.80	5.21	5.15
May	5.25	6.50	3.40	6.50	6.75	5.10
June	5.00	7.50	3.12	5.85	7.85	4.67
July	4.60	11.35	2.95	5.60	11.70	4.20
Aug.	....	13.35	2.95	....	15.00	4.20
Sept.	....	11.50	3.26	....	13.25	4.34
Oct.	....	9.70	3.35	....	11.90	4.40
Nov.	....	7.35	3.15	....	8.70	4.17
Dec.	....	7.75	2.90	....	8.15	4.00
Av.	....	7.40	3.58	....	8.43	4.90

BRITISH IRON AND STEEL OUTPUT.

Pig Iron—(Gross tons).

	1923	1922	1921
Jan.	567,900	288,000	642,100
Feb.	543,400	300,100	463,600
March ...	633,600	389,800	386,000
April	652,200	394,300	60,300
May	714,200	407,900	13,600
June	.....	369,200	800
July	.....	399,100	10,200
Aug.	.....	411,700	94,200
Sept.	.....	430,300	158,300
Oct.	.....	481,500	235,500
Nov.	.....	493,900	271,800
Dec.	.....	533,700	275,000
Total ...	.....	4,899,500	2,611,400

Steel Ingots and Castings.

	1923	1922	1921
Jan.	624,300	327,500	493,400
Feb.	707,100	418,800	483,500
March ...	802,500	549,400	359,100
April	749,400	404,200	70,600
May	821,000	462,300	5,700
June	.....	400,200	2,700
July	.....	473,100	117,200
Aug.	.....	520,800	434,100
Sept.	.....	555,900	429,300
Oct.	.....	565,200	405,400
Nov.	.....	600,800	442,800
Dec.	.....	546,100	381,000
Total ...	.....	5,831,900	3,624,800

COPPER IN JULY

Little happened in July to encourage domestic consumers to enter the market for any appreciable amount of copper for future shipment. At times, when the industrial and political situation abroad seemed to improve, foreign consumers bought a little more American copper but the buying was not well enough sustained to encourage domestic consumers to anticipate future requirements. Early in the month, producers reduced prices of electrolytic ⅛c a pound but toward the middle of the month there was some recovery, yet the general tendency of prices continued downward. At times concessions of ¼c a pound was made by small producers, especially by customs smelters, yet prices fluctuated within very narrow limits, the strong statistical position encouraging producers to expect no radical drop in prices. Toward the close of the month, however, the dullness in finished products at home and the disappointment in political developments in Europe brought about a further recession in producer's prices.

Electrolytic copper early in the month was held quite firmly by producers at 14.75c delivered followed by a recession to 14.50c on July 10th, but the loss was recovered in a day or two and 14.75c delivered was maintained until July 18th when prices receded to 14.62½c and again to 14.50c within a day or two, followed by another recovery which was not maintained, it being difficult to make sales at 14.62½c delivered when the month closed.

The outside market sympathized more or less closely with producers' asking prices but in general offerings by second hands were light throughout the month and held at a slightly higher level f.o.b. refinery. Practically the only outlet for the small lots occasionally available from second hands was through exporters who throughout the month were able to obtain electrolytic at prices ranging from 14.40c to 14.60c f.a.s. New York. Lake copper was dull, the price receding about ¼c a pound to 14.75c, 14.87½c delivered at the close of the month from 15.00c at the beginning of the month. There was small outlet for casting copper at ¼c a pound less than electrolytic and at the close of the month it was difficult to make sales at 14.25c f.o.b. refinery; in fact, there were few buyers even at 14.12½c refinery.

It is doubtful that sales of copper to domestic consumers throughout the month were as much as 40,000,000 pounds while sales on foreign account through the Export Association in Europe and through local exporters, amounted to more than 50,000,000 to 60,000,000 pounds.

Although domestic consumers made few purchases, it is estimated that they received deliveries against contracts of about 115,000,000 pounds while exports during the month amounted to approximately 65,000,000 pounds. Thus total deliveries were between 180,000,000 and 182,000,000 pounds, being approximately the same as refined output, leaving stocks of refined metal but slightly changed on August 1st from what they were on July 1st.

The revised statistical report of the Geological Survey, covering production, consumption, imports and exports of copper in 1922, became available July 10th and it was somewhat of a surprise to find stocks of refined copper on January 1, 1923 placed at 216,000,000 pounds. The preliminary report made January 12th, estimated refined stocks 277,000,000 pounds. On the other hand, blister stocks were increased from 352,000,000 361,000,000 pounds. In the last seven months refined stocks have further decreased while blister stocks have in-

COPPER IN JULY

	— New York —		— London —		
Day	Lake.	Electro.	Cast.	Stand.	Electro.
				£ s. d.	£ s. d.
2	15.00	14.50	14.25	64 12 6	71 10 0
3	15.00	14.50	14.25	64 17 6	71 10 0
4	.....	.....	.....	64 15 0	71 10 0
5	15.00	14.50	14.25	65 0 0	72 0 0
6	14.87½	14.50	14.25	64 15 0	72 0 0
9	14.87½	14.50	14.25	65 0 0	72 5 0
10	14.87½	14.50	14.25	65 5 0	72 5 0
11	15.00	14.68¾	14.37½	65 15 0	72 15 0
12	15.00	14.75	14.37½	66 0 0	73 0 0
13	15.00	14.70	14.37½	65 10 0	73 0 0
16	15.00	14.65	14.37½	64 17 6	72 10 0
17	15.00	14.65	14.37½	64 12 6	72 10 0
18	15.00	14.62½	14.31¼	65 0 0	72 10 0
19	14.93¾	14.60	14.31¼	65 12 6	72 10 0
20	14.93¾	14.60	14.31¼	65 17 6	72 15 0
23	14.93¾	14.60	14.31¼	65 10 0	72 15 0
24	14.93¾	14.62½	14.31¼	65 17 6	72 15 0
25	14.93¾	14.62½	14.31¼	65 12 6	72 10 0
26	14.93¾	14.62½	14.31¼	65 5 0	72 10 0
27	14.93¾	14.62½	14.31¼	65 10 0	72 10 0
30	14.87½	14.55	14.25	65 12 6	72 5 0
31	14.87½	14.55	14.25	65 5 0	72 5 0
High	15.00	14.80	14.37½	66 0 0	73 0 0
Low	14.87½	14.50	14.25	64 12 6	71 10 0
Aver.	14.95	14.59	14.30	65 5 7	72 7 3

creased. The probability is, therefore, that today total stocks of refined and blister copper are not much below 600,000,000 pounds.

The final report of the Government covering production in 1922 reduces the smelter output from 981,000,000 to 950,285,947 pounds, and the refined output from 1,398,000,000 pounds to 1,358,659,101 pounds. The latter is made up of an output of 904,670,685 pounds from domestic material and 453,988,416 pounds from foreign material. Production from secondary sources amounted to 146,100,542 pounds; thus the total production of refined copper last year from primary and secondary sources was 1,504,669,643 pounds. This compares with the 1921 production of 1,126,512,542 pounds. Domestic consumption in 1922, given in the revised report, amounted to 896,633,833 pounds.

There is little to add to the comments made last month regarding the future prospects of copper consumption for the second half of this year. There is small reason to expect increased consumption by American consumers in the second half of the year nor can Europe be depended upon to buy more American copper than it has been taking heretofore this year. Some improvement from the present dullness may be anticipated, but if there is increased buying it will be of a temporary character. Under such conditions a better average price than 15.00c for electrolytic copper cannot be expected in the second half of the year.

In this connection it is interesting to note the statement that the Copper Export Association in the year ended July 18th sold 161,600,000 pounds of copper abroad at an average price of 15.62c a pound. The July export sales averaged under, rather than over, 14.75c a pound.

Exports of copper in July are estimated at approximately 65,000,000 pounds which is about the same as the foreign outgo in June, bringing the total for the first seven months to nearly 197,500 tons equivalent to approximately 443,000,000 pounds. It must be remembered, however, that these figures include finished copper and therefore to this extent are a duplication of deliveries into domestic consumption.

Imports are again running very heavily. The May arrivals were in excess of 76,000,000 pounds being the largest imports for any one month of record.

Dallas Brass & Copper Co.

Manufacturers of

Brass and Copper Products

Prompt Mill Deliveries

Prompt Shipments From Warehouses

CLEVELAND CHICAGO DETROIT

WATERBURY COPPER AVERAGES

	1923.	1922.	1921.	1920.	1919.
Jan. ..	14.87½	13.87½	13.75	19.50	23.00
Feb. ..	15.75	13.37½	13.50	19.12½	18.00
Mar. ..	17.25	13.12½	12.62½	18.87½	15.50
Apr. ..	17.12½	13.00	12.75	19.12½	15.50
May ..	16.12½	13.37½	13.12½	19.00	16.37½
June ..	15.25	14.00	13.12½	18.50	17.75
July ..	15.00	14.12½	12.87½	19.00	22.00
Aug. ..	.....	14.12½	12.25	18.75	23.00
Sept. ..	.....	14.25	12.37½	18.75	22.50
Oct. ..	.....	14.25	13.12½	16.87½	22.25
Nov. ..	.....	14.12½	13.37½	15.25	21.00
Dec. ..	.....	14.50	13.87½	14.25	18.75
Av. ...	.....	13.84	13.06	18.06	19.63½

Annual Averages.

1918.....	24.75	1913.....	15.83
1917.....	30.11	1912.....	16.71
1916.....	28.85	1911.....	12.75
1915.....	18.94	1910.....	13.13
1914.....	13.91	1909.....	13.41

IMPORTS OF COPPER.

As compiled by the New York Metal Exchange and reduced to fine copper, in tons of 2,240 lbs.

	1923.	1922.	1921.	1920.
Jan.	16,500	5,500	17,500	16,500
Feb.	17,000	10,000	18,000	20,000
Mar.	23,500	15,000	10,000	17,500
April	15,500	16,000	15,500	12,000
May	34,000	12,000	7,000	23,000
June	.....	19,000	9,000	22,000
July	.....	19,500	14,000	12,000
Aug.	.....	21,000	10,000	13,000
Sept.	.....	25,000	10,500	12,500
Oct.	.....	18,000	14,500	14,500
Nov.	.....	33,000	11,000	16,000
Dec.	.....	26,000	14,000	17,500
Totals ...	.....	220,000	151,000	196,500

EXPORTS OF COPPER.

As compiled by the New York Metal Exchange from Custom House returns, in tons of 2,240 lbs.

	1923.	1922.	1921.	1920.
Jan.	23,409	24,679	24,068	21,804
Feb.	21,643	22,910	27,748	25,700
Mar.	28,284	35,851	17,151	39,236
April	28.225	28,367	18,397	28,644
May	25,911	27,894	15,736	37,090
June	29,885	29,191	22,339	25,581
July	.....	28,584	22,774	20,430
Aug.	.....	26,889	19,110	20,121
Sept.	.....	25,144	28,343	10,751
Oct.	.....	22,681	22,934	10,073
Nov.	.....	24,727	32,407	16,954
Dec.	.....	22,201	27,394	18,304
Total	.....	319,118	278,401	274,688

Annual Totals.

1919	227,169		
1918	328,844	1913	382,810
1917	493,256	1912	327,965
1916	327,310	1911	336,801
1915	270,704	1910	301,935
1914	360,229	1909	301,657

LAKE COPPER PRICES

Average prices in N. Y.—delivered.

	1923.	1922.	1921.	1920.	1919.
Jan. ...	14.92	13.76	13.53	19.76	21.75
Feb. ...	15.76	13.24	13.33	19.09	17.87
Mar. ...	17.26	13.03	12.58	18.87	15.48
April ..	17.13	12.91	12.89	19.05	15.73
May ...	16.12	13.42	13.12	18.85	16.30
June ...	15.24	13.97	13.04	18.55	17.93
July ...	14.95	14.07	12.75	18.83	22.08
Aug. ...	.....	14.09	12.11	18.72	22.96
Sept. ...	.....	14.19	12.23	18.53	22.48
Oct.	.....	14.16	13.01	16.87	21.94
Nov. ...	.....	14.07	13.30	14.97	20.49
Dec. ...	.....	14.46	13.80	14.01	18.88
Average	.....	13.78	12.98	18.01	19.49

Annual Averages.

1918	24.68	1913	15.70
1917	29.18	1912	16.58
1916	28.17	1911	12.71
1915	17.64	1910	13.12
1914	13.61	1909	13.39

ELECTROLYTIC COPPER PRICES

Average prices in N. Y.—f.o.b. refinery.

	1923.	1922.	1921.	1920.	1919.
Jan. ...	14.66	13.60	12.85	19.02	20.00
Feb. ...	15.50	12.97	12.79	18.61	16.91
Mar. ...	16.95	12.84	12.23	18.36	15.01
April ..	16.81	12.71	12.54	18.54	15.40
May ...	15.63	13.29	12.83	18.28	16.01
June ...	14.88	13.71	12.76	17.97	17.65
July ...	14.59	13.90	12.35	18.61	21.71
Aug. ...	.....	13.96	11.76	18.44	22.22
Sept. ...	.....	13.88	12.10	18.04	21.95
Oct.	.....	13.80	12.75	16.30	21.50
Nov. ...	.....	13.79	13.16	14.39	19.96
Dec. ...	.....	14.22	13.67	13.48	18.48
Average	.....	13.55	12.65	17.50	18.90

Annual Averages.

1918	24.68	1913	15.52
1917	29.19	1912	16.48
1916	28.46	1911	12.55
1915	17.47	1910	12.88
1914	13.31	1909	13.11

CASTING COPPER PRICES

Average prices in N. Y.—f.o.b. refinery.

	1923.	1922.	1921.	1920.	1919.
Jan. ...	14.30	12.96	12.61	18.81	18.48
Feb. ...	15.15	12.61	12.45	18.21	16.45
Mar. ...	16.64	12.54	11.83	18.11	14.82
April ..	16.60	12.46	11.82	18.40	15.06
May ...	15.45	12.84	12.24	18.16	15.49
June ...	14.57	13.33	12.08	17.65	17.17
July ...	14.30	13.34	11.68	18.12	21.10
Aug. ...	.....	13.43	11.43	18.00	21.71
Sept. ...	.....	13.39	11.75	17.76	21.28
Oct.	.....	13.39	12.43	16.01	20.66
Nov. ...	.....	13.40	12.53	14.12	19.37
Dec. ...	.....	13.81	12.97	13.12	18.21
Average	.....	13.13	12.15	17.21	18.32

Annual Averages.

1918	24.68	1914	13.18
1917	27.64	1913	15.33
1916	26.51	1912	16.29
1915	16.76	1911	12.42

COPPER AND BRASS PRODUCTS.

Business in copper and brass products was further contracted in July as compared with the two preceding months. The sagging tendency in prices of unwrought copper was again reflected in a decline of one cent a pound in bare copper wire by the American Brass Company and two days later in a drop of one cent a pound in the price of sheet copper and ¾c a pound in prices of anodes by some of the independent manufacturers. Bare copper wire is now being sold at 17.00c to 17.25c, copper sheets at 22.75c to 23.75c, copper in rolls at 21.25c to 22.25c and copper anodes at 19.75c for trimmed and 19.50c for untrimmed. Otherwise prices of finished products were unchanged throughout July.

Manufacturers of finished products last month, therefore, had a further opportunity to catch up in shipments against contracts upon which they were in arrears. In most departments now shipments are only a few weeks behind contract obligations but manufacturers still have orders on their books equal to two months capacity. The mills, however, are working into easier positions. It is understood that manufacturers in the Connecticut valley are now operating at an average rate of 75% to 80% of capacity. In exceptional instances some plants are operating as high as 90% while others are employing scarcely more than 60% of capacity.

Consumption of copper by the American Brass Company in the first half of this year, it is estimated, amounted to between 250,000,000 and 300,000,000 pounds, which is at the rate of about 500,000,000 to 600,000,000 pounds a year. In 1922 this company consumed 415,170,524 pounds and in a period of eleven years, its consumption averaged 381,581,280 pounds a year. It is scarcely to be expected, however, that consumption in the second half of the year will equal that of the first six months. Upon the above estimate it is indicated that the American Brass Co. also consumed in the first half of this year between 75,000,000 to 100,000,000 pounds of zinc, which is required, with copper, in the production of brass.

It is estimated that consumption of wrought copper by manufacturers of finished products including electrical companies, brass mills, copper rolling mills, and other large consumers, in the first

BRASS AND COPPER PRODUCTS.

The last two price lists issued follow:

COPPER PRODUCTS.

	May 15	June 26
Sheet copper	24¼	23¾
Copper bottoms	32¾	32¼
Copper in rolls	22¾	22¼
Brush copper	25¼	24¾
Sawed copper	25	24½
Drawn copper shapes	22¾	22¼
Commutator copper	24	23½

BRASS PRODUCTS.

Sheet Metal.

High brass	20½	19¾
Low brass	22¼	21½
Rich low brass	22¾	22
Commercial bronze and gilding	24⅛	23⅜
Best spring drawing and spinning brass	21½	20¾

Wire.

High brass	21	20¼
Low brass	22¾	22
Commercial bronze and gilding	24⅝	23⅞
Best spring and brazing brass	22	21¼

Rods.

High brass (free turning)	18¾	18
Low brass	23	22¼
Commercial bronze	24⅞	24⅛

Brazed Tubes.

Brass	28½	27¾
Copper and commercial bronze	33⅞	33⅛
Open seam brass	28½	27¾
Open seam copper and commercial bronze	33⅞	33⅛

Seamless Tubes.

	Mar. 22	May 15
High brass	26½	25½
Low brass	28½	27½
Commercial bronze	29½	28½
Copper	28	27

NICKEL SILVER.

	May 15	June 26
10% grade A sheet metal	27¾	27
15% " " " "	29¼	28½
18% " " " "	30¼	29½
25% " " " "	40½	40
5% grade B sheet metal	25¾	25
10% " " " "	27¼	26½
12% " " " "	28	27½
15% " " " "	28¾	28
18% " " " "	29¾	29
25% " " " "	40	39½
5% wire and rod	27¾	27
10% " " "	30¾	30
12% " " "	32¼	31¾
15% " " "	34¼	33½
18% " " "	37¼	36½

half of this year, averaged very close to 140,000,000 pounds a month. If the average is maintained at 100,000,000 pounds a month for the second half of the year, it will be very satisfactory. In the first six months of 1922, it is estimated that unwrought copper was consumed, mainly for electrification purposes, at the rate of 85,000,000 pounds a month. In 1921, 50,000,000 pounds, in 1920, 88,000,000 pounds and in 1913 56,000,000 pounds. These figures, of course, refer to domestic industry.

ZINC IN JULY

The end of June proved to be a turning point in the almost uninterrupted decline in zinc since March. The market had reached 5.75c E. St. Louis basis for prime western, but during July there was a gradual but steady gain amounting to about ½c per pound, the month closing with prices at 6.35c.

This rise, however, was not due to any marked improvement in consumption but mainly to the increased cost of ore.

On July 1st the principal mines in the Joplin district, representing about 90% of the production of that region shut down entirely for two weeks. The price of ore had declined to $33.00 per ton, as against a cost, according to representations, of $40.00 per ton. After the two weeks cessation, mining operations were resumed on a two-thirds scale, by limiting them to five days a week and cutting out night shifts.

The situation of the ore producers had become the more unsatisfactory through the decline in lead ore, which, of course, is mined in conjunction with zinc. With lead ore bringing $100 per ton in the early months of the year, the low price of zinc had been a matter of less concern than when lead ore declined as it did in June to $65.00 per ton.

The stocks of zinc ore in ore producers' bins at the beginning of July was about 55,000 tons, a large but not excessive amount.

The shut down of mining and subsequent limitation resulted in higher prices for ore, which at the end of July was bringing about $38.00 per ton. The ore purchases during July, however, were small, as the market for slab zinc though advanced by the increased cost did not reach a point at all remunerative to the smelter. With ore at $33.00 per ton, there was a decided loss in smelting at 5.75c E. St. Louis basis. At the July closing prices, $38.00 and 6.35c respectively, there was less discrepancy, but still no adequate return, yet the condition of demand did not permit of further advance in the metal.

A feature of importance during July was the rise in the foreign market, amounting for the month to over £3 per ton. At the close, the London price was £31 15s with sterling exchange at $4.56¾, which revived hopes of renewed export from this country. Enquiries from abroad were reported, but the London figures were still about £1 per ton too low for actual business.

The advance abroad was stated to be due to the improved condition of British export trade in galvanized sheets, and a tightening of Belgian prices, with small available stocks. Belgium, which continues to produce about 12,000 tons per month, was reported to have little unsold for delivery before October, and the amount available from Germany is negligible. Belgian output is apparently incapable of much, if any, extension under present conditions, even if the prices ruling were advantageous, which it is stated they are not.

Summing up the month, the strength displayed must be acknowledged to rest

LEAD AND ZINC PRICES IN JULY

Day	LEAD				ZINC			
	New York *	New York †	St. Louis†	London £ s d	New York	St. Louis§	London £ s d	
2	6.65	6.85	6.50	23 17 6	6.12½	5.77½	28 5 0	
3	6.50	6.65	6.35	23 15 0	6.12½	5.77½	27 17 6	
4	....	....	....	23 17 6	....	....	27 15 0	
5	6.35	6.35	6.15	23 17 6	6.20	5.85	27 17 6	
6	6.25	6.25	6.05	23 15 0	6.22½	5.87½	28 0 0	
7	6.25	6.25	6.05	.. .. .	....	....	.. . .	
9	6.10	6.25	6.00	24 2 6	6.30	5.95	28 7 6	
10	6.00	6.00	5.75	24 10 0	6.42½	6.07½	28 12 6	
11	6.00	6.00	5.75	24 10 0	6.52½	6.17½	28 12 6	
12	6.00	6.00	5.75	24 12 6	6.57½	6.22½	29 0 0	
13	6.00	6.00	5.70	24 5 0	6.52½	6.17½	28 15 0	
14	6.00	6.00	5.70	.. .. .	....	....	.. .. .	
16	6.00	6.00	5.82½	24 0 0	6.50	6.15	28 12 6	
17	6.00	6.00	5.92½	24 0 0	6.47½	6.12½	28 17 6	
18	6.00	6.00	5.95	24 0 0	6.45	6.10	29 2 6	
19	6.00	6.00	6.05	24 2 6	6.42½	6.07½	29 7 6	
20	6.00	6.00	6.05	24 10 0	6.45	6.10	29 15 0	
21	6.00	6.00	6.05	.. .. .	....	....	.. .. .	
23	6.25	6.25	6.12½	24 10 0	6.45	6.10	30 5 0	
24	6.25	6.25	6.20	24 12 6	6.45	6.10	30 15 0	
25	6.25	6.30	6.20	24 7 6	6.50	6.15	30 10 0	
26	6.25	6.45	6.45	24 0 0	6.55	6.20	30 12 6	
27	6.50	6.62½	6.65	24 2 6	6.60	6.25	31 0 0	
28	6.50	6.62½	6.65	.. .. .	....	....	.. .. .	
30	6.50	6.62½	6.75	24 7 6	6.65	6.30	31 12 6	
31	6.50	6.62½	6.67½	24 7 6	6.65	6.30	31 15 0	
High	6.65	6.85	6.70	24 12 6	6.67½	6.32½	31 15 0	
Low	6.00	6.00	5.67½	23 15 0	6.10	5.75	27 15 0	
Aver.	6.20	6.25	6.13	24 3 9	6.44	6.09	29 7 2	

* A. S. & R. price.
† Outside market. § Prime Western.

solely on increased costs and the renewed hopes of export, for domestic consumption in July has been on a diminished scale, and the outlook for the balance of the year promises much less activity than its earlier part.

Production of slab zinc on the other hand remains on a scale but little below the heavy rate attained in the Spring, with the result of increasing stocks. During June, stocks in smelters' hands increased over 4,000 tons to 17,173 tons, production being 42,840 tons for that month and shipments only 38,686.

Curtailment is certainly needed. The brightest expectations of export do not look for the absorption of a 4,000 ton monthly surplus, and there is indeed no assurance of any foreign assistance at all.

PRIME WESTERN ZINC PRICES.

Average Prices, East St. Louis Basis.

	1923	1922	1921	1920	1919	1918
Jan.	6.96	4.71	5.44	9.22	7.12	7.71
Feb.	7.25	4.50	4.95	8.82	6.37	7.73
Mar.	7.87	4.65	4.73	8.62	6.18	7.42
Apr.	7.32	4.91	4.75	8.26	6.16	6.81
May	6.72	5.10	4.86	7.72	6.11	7.14
June	6.05	5.35	4.44	7.58	6.57	7.85
July	6.09	5.77	4.27	7.82	7.56	8.43
Aug.	....	6.24	4.19	7.95	7.50	8.73
Sept.	....	6.56	4.25	7.77	7.20	9.31
Oct.	....	6.85	4.61	7.25	7.49	8.77
Nov.	....	7.14	4.68	6.37	7.83	8.39
Dec.	....	7.12	4.85	5.84	8.40	8.21
Av.	....	5.74	4.67	7.77	7.04	8.04

Annual Averages.

1917	8.93	1912	6.93
1916	13.57	1911	5.70
1915	14.16	1910	5.42
1914	5.11	1909	5.39
1913	5.61	1908	4.62

WATERBURY ZINC AVERAGES.

	1923	1922	1921	1920	1919	1918
Jan.	8.00	5.25	6.05	9.75	9.00	9.60
Feb.	8.00	5.00	5.50	9.40	8.10	9.60
Mar.	8.70	5.10	5.25	9.15	8.00	9.40
Apr.	8.25	5.40	5.20	8.85	6.90	8.50
May	7.60	5.55	5.30	8.30	6.80	8.95
June	7.00	5.85	5.00	8.15	7.25	9.50
July	6.80	6.20	4.80	8.45	8.10	10.30
Aug.	....	6.50	4.70	8.55	8.15	10.45
Sept.	....	7.10	4.75	8.45	7.85	11.20
Oct.	....	7.65	5.10	7.50	8.15	10.60
Nov.	....	7.90	5.15	7.00	8.55	10.20
Dec.	....	7.90	5.30	6.40	9.05	10.00
Av.	....	6.28	5.17½	8.33	8.00	9.86

JOPLIN ZINC AND LEAD ORES.

Review for July, 1923.

Shipments of zinc ore from the Joplin district totaled only 31,627 tons for the month of July, which is the smallest shipment of the year, and which compares with 47,268 tons for the same period last year.

The month opened with a top price of $36.00, advanced to $38.00 the second week of the month and the month closed with the price of $37.50. The average price paid for all ores sold during the month averaged $35.99 which compares with $33.34 for the same period last year. Total zinc sales for the month aggregated $1,138,477.

The lead ore shipments for the month aggregated 3,778 tons which is also the smallest shipment of the year. The average price for the month was $66.01. The market opened at the beginning of the month with a price of $65.00, then dropped to $60.00 and at the end of the month the price advanced to $75.00. There is practically no surplus stocks of lead ore in the district, and with the curtailment of mining operations there is little likelihood of any accumulation of lead.

U. S. ZINC STATISTICS.

From the monthly reports of the American Zinc Institute, in tons of 2,000 lbs.

	Production		Deliveries	
	1923.	1922.	1923.	1922.
Jan.	23,706	25,916	24,636	21,021
Feb.	42,443	22,513	48,153	24,067
Mar.	48,731	26,532	49,574	30,394
April	46,866	25,506	47,911	34,040
May	47,347	27,419	43,304	38,738
June	42,840	28,547	38,686	39,380
July	.....	31,917	.....	32,875
Aug.	.....	31,423	.....	38,412
Sept.	.....	33,134	.....	35,957
Oct.	.....	39,940	.....	40,703
Nov.	.....	40,200	.....	38,746
Dec.	.....	42,841	.....	44,086
Total	.....	373,678	.....	422,034

	Stocks at Smelters*		Retorts in Operation*	
	1923.	1922.	1923.	1922.
Jan.	16,574	65,678	84,131	44,457
Feb.	10,864	64,124	86,931	43,357
Mar.	10,021	60,262	89,054	45,373
April	8,976	51,728	89,203	42,773
May	13,019	40,409	86,731	48,765
June	17,173	29,576	84,455	52,677
July	.....	28,618	.....	54,909
Aug.	.....	21,629	.....	57,193
Sept.	.....	18,806	.....	65,936
Oct.	.....	18,043	.....	72,116
Nov.	.....	19,947	.....	75,664
Dec.	.....	18,252	.....	80,863

* At the end of month.

Shipments of lead ore one year ago aggregated 8,951 tons at an average price of $76.60.

The curtailment program which is being carried out throughout the Tri-State district is progressing in a very satisfactory manner, and the production of the field is now considerably under 9,000 tons. Many of the properties which closed down during two weeks shut-down period have not resumed operations, many of them having cut out all the known ore bodies and in other instances the properties are too "thin" to make mining profitable at the present market price.

TIN IN JULY

The tin market in July showed some resistance to the steady reaction in prices that has been going on ever since last March when spot Straits sold at 51.50c, the highest price since June 2, 1920.

July opened with a sharp break in London of £6 per ton, due to selling pressure by prominent operators there and sales were made in this market on the first business day of July at 37.50c as against the closing price for June of 39.12½c. This proved to be the lowest point touched in the month, as on the decline some good buying took place by some of our consumers and dealers, and in consequence of this, and as the monthly statistics were favorable (the American deliveries for June showing 5,400 tons, and the world's visible supply showing a decrease of 900 tons) the market recovered to 38.50c by July 9th. At the improvement in price, the buying again fell off in this market, and with information received that the U. S. Steel Corporation's orders had fallen off during June nearly 600,000 tons, in part attributed to the falling off in the sheet and tin plate orders, the market reacted to 38.37½c two days later. At that time, however, the long awaited speech of Premier Baldwin, which was expected to be the opening gun in the beginning of steps being taken to clear up the Ruhr situation, was received, and the market advanced to 38.75c. Premier Baldwin's speech, on examination, however, failed to present any definite plans to clear up the Ruhr situation, and our consumers showing no interest, the market in the next few days declined again to 38.00c. At this point, however, New York traders became buyers both in this market and in London, and prices on the 20th advanced to 39.37½c and on the 24th advanced to 39.75c, which was the highest point touched during the month. London quickly responded to these purchases, which were taken by London to mean that the situation of the American consumers had improved and that they were free buyers. This, however, was not the case. The purchases were purely a New York traders' proposition, and in the next few days on a stagnant market both here and abroad, prices declined to 38.62½c, at which price the month closed. The month showed highest price of 39.75c, lowest 37.50c, opening 37.50c, closing 38.62½c, and average price for the month of 38.47½c.

Throughout the month the consumers' attitude was a repetition of the previous months, buying very moderately on breaks, and withdrawing from the market whenever an improvement in price took place. This attitude they were still in a position to follow, being comfortably supplied with stocks, fully covered by future contracts for raw material for future orders on their books, and as in the past two months, getting very few new orders. At no time has there been any movement to depress prices. Neither consumers nor traders were eager to see prices decline, believing the present level of prices had discounted such unfavorable features in business as had recently developed. At the same time consumers have seemed determined not to contract for raw ma-

TIN PRICES IN JULY

Day	New York Straits' 99%.		London Stand. £ s. d.	London Straits. £ s. d.	Singapore Straits. £ s. d.
2	37.50	37.00	176 15 0	179 15 0	184 0 0
3	37.75	37.25	177 15 0	180 15 0	181 0 0
4	.....	.....	176 2 6	179 2 6	181 5 0
5	37.50	37.00	177 5 0	180 5 0	179 5 0
6	37.75	37.25	177 12 6	180 12 6	180 10 0
9	38.50	38.00	181 7 6	184 7 6	183 0 0
10	38.37½	37.87½	180 7 6	183 7 6	186 10 0
11	38.37½	37.87½	181 2 6	184 2 6	184 5 0
12	38.75	38.25	183 0 0	186 0 0	184 15 0
13	38.25	37.87½	180 15 0	183 15 0	187 10 0
16	38.00	37.50	178 17 6	181 17 6	185 0 0
17	38.00	37.37½	177 15 0	181 15 0	182 10 0
18	38.00	37.50	178 7 6	181 7 6	182 0 0
19	38.25	37.75	179 10 0	182 10 0	183 5 0
20	39.37½	38.75	183 2 6	186 2 6	184 5 0
23	39.75	39.12½	186 10 0	189 10 0	190 0 0
24	39.62½	39.12½	187 0 0	190 0 0	190 15 0
25	39.12½	38.62½	185 5 0	188 5 0	191 15 0
26	38.80	38.25	183 12 6	186 12 6	188 0 0
27	38.90	38.37½	184 7 6	187 7 6	187 5 0
30	38.87½	38.37½	184 17 6	188 7 6	188 10 0
31	38.62½	38.12½	184 15 0	188 5 0	189 0 0
High ..	39.75	39.12½	187 0 0	190 0 0	191 15 0
Low ..	37.50	37.00	176 2 6	179 2 6	179 5 0
Aver. ..	38.48	37.96	181 3 9	184 5 7	185 3 10

MONTHLY TIN STATISTICS

As published by the New York Metal Exchange in tons of 2,240 pounds:

	July 1923.	June 1923.	July 1922.
Supplies—			
Straits	5,025	5,390	4,995
Australian	35	100	112
Banka and Billiton	1,129	2,097	835
Chinese	454	592	1,252
Standard	859	880	244
	7,502	9,059	7,438
Deliveries—			
U. K. all kinds ...	1,006	1,754	2,488
U. S. A. all kinds .	5,305	5,410	4,590
Continent, all kinds	2,469	2,785	1,071
	8,780	9,949	8,149
Decrease in total visible supply ..	1,278	890	711
Stocks—			
U. K. all kinds ...	4,131	4,512	6,950
U. S. A. all kinds .	2,037	2,137	3,616
Continent, all kinds	2,200	2,305	2,727
	8,368	8,954	13,293
Afloat—			
U. K. all kinds ...	1,846	1,138	1,706
U. S. A. all kinds .	7,937	8,942	6,653
Continent, all kinds	1,868	2,263	1,719
	11,651	12,343	10,078
Tot. visible supply	20,019	21,297	23,371

STRAITS TIN PRICES.

Average prices of Straits tin for prompt delivery in New York.

	1923.	1922.	1921.	1920.	1919.
Jan. ...	39.17	32.11	36.11	62.89	72.50
Feb. ...	42.03	30.82	32.47	60.00	72.00
Mar. ...	48.65	29.17	28.85	61.99	71.75
April ..	45.87	30.65	30.41	62.20	72.26
May ...	43.16	30.97	32.52	55.07	71.94
June ..	41.00	31.54	29.57	48.62	71.20
July ...	38.48	31.82	27.69	49.37	70.39
Aug. ...	.....	32.43	26.40	47.69	63.78
Sept. ..	.....	32.40	26.73	44.62	55.81
Oct. ...	.....	34.64	27.74	40.64	55.62
Nov. ...	.....	36.72	29.02	37.02	54.17
Dec. ...	.....	37.68	32.49	34.15	55.06
Average		32.58	30.00	50.36	65.54

Yearly Averages.

1919	65.54	1914	35.70
1918	86.80	1913	44.32
1917	61.65	1912	46.43
1916	43.48	1911	42.68
1915	38.66	1910	34.27

TIN DELIVERIES IN UNITED STATES

Monthly deliveries of tin in United States, exclusive of domestic refined tin, in tons of 2,240 pounds.

	†1923.	1922.	1921.	1920.	1919.
Jan. ...	6,625	4,275	1,555	3,910	1,850
Feb. ...	6,185	3,215	1,585	5,200	2,450
Mar. ...	6,634	6,030	1,683	5,130	2,070
April ..	6,775	4,995	1,590	3,305	36
May ...	6,035	4,740	1,225	3,550	20
June ...	5,410	5,130	1,590	6,500	68
July ...	5,305	4,590	1,525	5,530	132
Aug. ...	.....	4,150	3,320	3,745	4,345
Sept. ..	.....	5,050	2,605	4,860	4,825
Oct.	.....	5,603	2,280	3,415	2,875
Nov. ...	.....	4,812	3,250	3,395	6,665
Dec. ...	.....	4,870	3,710	2,580	6,965
Total ..	.....	57,460	25,918	51,120	32,301

VISIBLE SUPPLY OF TIN

World's visible supply of tin at end of each month in tons of 2,240 pounds.

	†1923.	1922.	1921.	1920.
Jan.	25,765	26,216	18,994	21,056
Feb	25,157	25,047	17,074	21,586
Mar.	24,622	22,353	16,073	18,305
April	22,116	22,017	15,670	19,342
May	22,187	22,910	18,352	20,976
June	21,297	23,566	17,968	18,851
July	20,019	21,502	20,316	18,546
Aug.	.....	24,176*	19,358	19,858
Sept.	.....	22,879*	21,189	18,996
Oct.	.....	22,902	23,349	19,964
Nov.	.....	25,286	22,806	19,823
Dec.	.....	24,930	25,220	19,410
Average ..	.....	23,649	19,697	19,726

* Includes current shipments of Banka and Chinese to U. S.

Annual Averages.

1919	12,890	1914	14,907
1918	13,894	1913	12,377
1917	18,803	1912	13,207
1916	18,585	1911	16,404
1915	15,208	1910	18,815

TIN SHIPMENTS FROM STRAITS

(Tons of 2,240 lbs.)

	†1923.	1922.	1921.	1920.	1919.
Jan. ...	6,255	5,515	1,055	3,910	3,340
Feb. ...	4,655	3,640	240	4,810	2,860
Mar. ...	6,020	4,985	915	2,795	2,254
April ..	4,490	5,350	1,800	3,872	1,127
May ...	5,535	6,420	3,667	4,930	1,704
June ...	5,390	6,505	1,425	4,261	1,629
July ...	5,025	4,035	3,975	3,865	7,302
Aug. ...	.....	5,855	3,165	3,798	8,829
Sept. ...	.....	4,050	5,300	4,529	5,465
Oct.	.....	5,650	4,525	3,340	4,431
Nov. ...	.....	6,145	4,065	2,630	4,135
Dec. ...	.....	4,635	5,920	2,225	6,677
Total ..	.....	62,785	36,052	44,965	49,763

Annual Totals

1918	*55,000	1914	63,093
1917	62,366	1913	62,550
1916	61,587	1912	59,318
1915	66,517	1911	55,470

† **Note — London Metal Exchange statistics** * Estimated.

terial in advance of actual orders for the commodities they produce, while traders, disappointed at the result of efforts made by them to improve prices, have taken their losses, waiting for some real change in the situation to justify continued buying without the co-operation of the consumer.

During the decline of the past three months these losses have eaten heavily into the profits made during the advancing market of January, February and early March, and we doubt if during the decline there has been much, if any, short selling in this market.

The statistics issued for July were a surprise, showing a decrease in the visible supply of about 1,100 tons instead of an increase of about 1,000 tons as was expected, but when examined it is seen that these good statistics were only made possible by small shipments from the East Indies during July, and as no decreased production is in evidence there it seemed to mean that stocks there had been increased in July. The small shipments also show that the Malay Government have not taken advantage yet of the agreement made two or three months ago that permitted them to liquidate their large surplus stocks at the rate of 5% per month, so while the statistics show a decrease in the world's visible in July, there has been really undoubtedly an increase as these statistics do not cover or include the stocks held at the sources of production.

The London market has been quiet throughout the month, both the bulls and the bears apparently "resting on their oars," awaiting some indication as to what the American demand is going to be over the next three months, because it is generally recognized that the future of tin depends on the American consumption. It was the very heavy orders that our tin plate and other industries consuming tin took early in the year, and the heavy purchases they made to cover these orders that caused the sharp advance in tin. The decline that has since taken place, of course, is attributed to a reverse of these conditions.

The consumption of tin has been large in July, but it represented the filling of old orders for which the tin had been contracted for months before.

The outlook continues to be for limited buying by consumers unless the price should decline drastically, but it is also expected that by September the general business situation will be clearer and more normal conditions will then exist as regards purchases by consumers. When any free buying takes place by America, the London market will be as usual ready to exploit it for all it is worth.

Everything considered, tin is not dear at present prices as during the ten years prior to the outbreak of the war, the average price of pig tin was 36.48c.

LEAD IN JULY

The decline in lead from the high peak reached in March was at last checked in July.

The month opened with the American Smelting & Refining Company's price at 6.65c New York, but fractional reductions followed almost daily during the early part of July, until on the 10th their contract basing price was 6.00c New York.

It will be recalled that the initial cause for the downward turn from 8.25c in March was the weak foreign market, which threatened and indeed brought about for a time importations to this country. That threat no longer existed with lead at 7.00c New York. The decline below that figure was due to diminished activity and lessening prospects of consumption. It did not result from any heavy accumulation of stocks of pig lead. In fact these have all along been quite small, producers having little or no surplus, and stocks in middlemen's hands light.

LEAD PRICES, ST. LOUIS.

Average Prices, East St. Louis Basis.

	1923.	1922.	1921.	1920.	1919.
Jan. ...	7.64	4.40	4.78	8.32	5.36
Feb. ...	8.16	4.40	4.29	8.62	4.83
Mar. ..	8.33	4.43	4.03	8.93	5.01
April ..	8.03	4.97	4.30	8.71	4.87
May ...	7.12	5.30	4.82	8.52	4.80
June ...	6.88	5.58	4.34	8.36	5.06
July ...	6.13	5.45	4.28	8.58	5.42
Aug. ...	....	5.55	4.23	8.89	5.60
Sept. ..	....	5.90	4.41	8.23	5.81
Oct.	....	6.36	4.47	7.08	6.22
Nov. ...	....	6.88	4.38	6.16	6.68
Dec. ...	....	6.99	4.40	4.75	6.96
Year ...	....	5.52	4.39	7.93	5.55

Annual Averages

1918	7.25	1913	4.26
1917	8.92	1912	4.38
1916	6.80	1911	4.31
1915	4.57	1910	4.33
1914	3.74	1909	4.10

Probably never in the history of metal markets has any such drastic upward movement culminated and reacted with so little overstock of virgin metal. This is certainly an instance of careful adjustment of prices to conditions.

With the falling market, buying had naturally been very hesitant, but when, after the frequent and repeated reductions the price was maintained at 6.00c even for a few days, confidence reasserted itself and active demand ensued in the shape of deferred orders. Speculative buying also developed, particularly in the St. Louis market, and the increased activity resulted in an advance on July 23rd in the A. S. & R. Co.'s price to 6.25c, and on July 27th to 6.50c New York. This was the contract basing price at the end of July, but the St. Louis market in consequence of light stocks and more buoyant views of the future, ruled at around 6.65c at the end of the month. The principal smelting interest had no lead to spare for immediate New York delivery at their price of 6.50c, and shipments from the west at the E. St. Louis price plus the freight to New York were not infrequent.

The outlook at the end of July for business in lead was not very clearly defined. In the early part of the Summer, though lead stocks were low, manufacturers of lead products were carrying heavy stocks of their manufactured goods. This is not an unusual Summer condition, but the prospects also at that time for Fall trade seemed quite unpromising. Later during the month the situation showed improvement both in immediate demand and in regard to future outlook.

While it is quite improbable that the high scale of the early months of the year will be attained, indications seem to point to a good Fall trade in most lead consuming lines.

Production of ore has fallen off to a considerable extent in consequence of the lower price and also through the termination of the Pittman Silver Purchase Act. It remains to be seen whether the present level will be high enough to encourage output sufficient for consuming needs.

The foreign market has lately shown steadiness and offers no menace to prices here, standing at the close of July at £24 7s 6d equal to over 7.00c duty paid New York.

LEAD PRICE CHANGES.

The American Smelting & Refining Company's changes in the base price of lead since the beginning of 1922 are given below:

1922—		1923—	
Opening	4.70	Jan. 9	7.40
Mar. 30	4.80	" 10	7.50
April 3	4.90	" 22	7.75
" 7	5.00	" 23	8.00
" 20	5.10	Feb. 23	8.10
" 24	5.25	Mar. 1	8.15
May 16	5.35	" 2	8.25
" 18	5.50	April 19	8.00
" 29	5.65	" 28	7.75
June 7	5.75	May 3	7.50
Aug. 21	5.90	" 9	7.25
Sept. 14	6.00	June 21	7.00
" 19	6.10	July 2	6.65
" 22	6.25	" 3	6.50
" 27	6.35	" 5	6.35
Oct. 6	6.50	" 6	6.25
Nov. 1	6.75	" 9	6.10
Nov. 2	7.00	" 10	6.00
" 24	7.10	" 23	6.25
Dec. 19	7.25	" 27	6.50

PLATINUM IN JULY

Throughout June the official price for platinum, $116.00 an ounce for refined, was well-sustained, although occasionally this price was shaded especially during the first two weeks of the month. In the second half of July the market remained quiet but steady for soft refined and the differentials between soft and other grades remained as established in June. No. 12 medium, being held at $125.00 and hard at $134.00 an ounce.

Apparently there was an ample supply of refined either in stock or available through current refining operations to fully meet consumers' requirements. Receipts of crude were moderate but ample. Some business is understood to have been done between $110.00 and $112.00 an ounce, that is, the market was less strong than in the latter part of June, yet prices were well maintained generally, refineries making only few purchases from importers.

The demand for palladium continued moderate with small sales at $79.00 to $81.00 an ounce. Iridium was quiet but the advance noted in June was well-maintained throughout July, asking prices being between $295.00 to $300.00 an ounce.

ANTIMONY IN JULY

Antimony advanced during July from 6.90c duty paid New York for Chinese 99% at the commencement of the month to 7.75c at its close.

For a long time, offerings from China have been small. The reports are that the prices ruling during 1922 were so unremunerative that production has dwindled, and there has also been interruption through the insurrectionary disturbances in that country.

In the early part of July, with the import price at 5.00c c.i.f. New York in bond (equal to 7.00c duty paid) a good deal of speculative buying of futures occurred that resulted in the advance by gradual degrees already indicate. Consumers also appeared as buyers to some extent towards the end of the month but have not yet shown a great amount of confidence in the rise.

The Chinese market received additional strengthening from purchases for European account in July. The rise in the early part of the year which stopped at 8.00c New York and reacted to below 7.00c was checked by profit-taking resales of Chinese antimony from Europe. There are at present no offerings from that source to weaken the position, but the effect of speculative parcels from domestic sellers may later have to be taken into account.

It is still doubtful as to what should be regarded as a normal price for Chinese antimony, Chinese costs being a matter of obscurity. There is no guide from pre-war costs, for in those days Chinese output was unknown, and the price for the European product averaged around 7.50c New York, with only a 10% duty. Subsequent to the war, Chinese antimony for a time sold below 4.00c in bond but this must be regarded as a figure that is in no way reckoned on for any metal whatsoever that has to be mined, shipped from interior points, smelted, boxed, put on steamer and transported half around the world, even taking into account the low price of Chinese labor, which undoubtedly is somewhat higher now than formerly. The duty at present is 2c per pound. The industry in China is probably in a state of more or less disorganization, and more time is needed for forming a proper estimate.

The New York stocks of antimony are not heavy and rather closely controlled, and while consuming demand is and has been for some months light, that fact may induce the view that consumers will have to be buyers 'ere long.

The general condition of trade at the present time, however, cannot be regarded as favorable for bullish markets. War stocks of shrapnel and antimonial lead are not even yet exhausted, though their effect is diminishing.

ANTIMONY PRICES.

Prices for Chinese and Japanese antimony (ordinary grades) in New York.

	1923	1922	1921	1920	1919	1918
Jan.	6.81	4.45	5.22	10.53	7.59	14.23
Feb.	7.20	4.38	5.23	11.55	7.24	13.67
Mar.	8.75	4.25	5.30	10.97	6.83	13.12
April	8.38	4.88	5.15	10.45	6.82	12.52
May	7.43	5.42	5.25	9.44	7.56	12.41
June	6.84	5.13	5.06	7.93	8.37	12.99
July	7.05	5.08	4.68	7.43	8.81	13.18
Aug.	....	5.29	4.55	7.04	8.92	13.81
Sept.	....	6.43	4.53	7.10	8.53	13.93
Oct.	....	6.80	4.94	6.62	8.60	13.44
Nov.	....	6.54	4.66	6.05	9.06	9.10
Dec.	....	6.35	4.51	5.46	9.56	8.19
Av.	....	5.42	4.92	8.38	8.16	12.55

Annual Averages.

1917	20.73	1913	7.43
1916	25.33	1912	7.68
1915	29.52	1911	7.48
1914	8.53	1910	7.27

NICKEL IN JULY

Orders placed for nickel ingots in July were moderate in number and in tonnage. Most of the buying was at prices ranging from 29 cents to 30 cents a pound. Shipments against contracts took a larger part of the production in the United States and Canada but as with other metals the general position of the market is somewhat easier.

General interest in the trade is largely centered in the effort made to increase consumption of nickel through a larger demand for rolled and drawn nickel products. A nickel project at Clearfield, Pa., including manufacture of rods, sheets and wire is expected to bring about a larger consumption of nickel in the near future and a further increase is expected in the future. A demand is being created for nickel cooking utensils. In the last six months automobile manufacturers have taken a relatively large amount of nickel steel and this outlet is expected to be even more satisfactory as time passes. An effort is being made to show the advantages of nickel alloys in many fields of manufacture which

may have been neglected heretofore through lack of advertising.

Makers of nickel steel have taken a little more nickel this year than in 1922 when only one-eighth of the output went to steel makers against 50% during the war period. Nickel manufacturers have made further gains in shipments against contracts which were in arrears during the first four months of this year.

QUICKSILVER IN JULY

Arrivals of quicksilver from Italy in June were applied mainly against contracts but there was a considerable surplus available for the open market. As a result of the freer offerings and moderate demand the tone of the market was easier with sales of lots running 25 flasks and upward at $65.50 per flask for July and August shipment. Small lots, however, brought $66.50 to $67.00 per flask. A few large consumers, including the General Electric Company made purchases. Mercurial manufacturers made moderate purchases although they were not actively in the market. Freer purchases were made, however, by the vermillion paint makers but mainly in relatively small lots. Furriers, who often come into the market at this time of the year, are still absent, but are expected to make purchases some time in August.

There were some offerings afloat from Italy which were held at $66.00 a flask but as it was possible to pick up 25 flask lots here at $65.50, little was done in afloat cargoes. Almost no imports from either Spain or Great Britain were received in July, practically all of the metal coming from Italy. California production also continued small and arrivals were few and far between.

The London market was somewhat easier than in June with offerings at £10 c.i.f. New York. The lower price, however, was due rather to sterling exchange than to any important change in the foreign market. The American market, however, is receiving very few lots through London.

At the beginning of August the market was quiet but steady with anticipations of some improvement in demand during the month.

ALUMINUM IN JULY

Throughout July there were few important transactions in aluminum. So far as New York is concerned there was scarcely enough business to establish prices. As during the last two months, practically all of the current arrivals are being shipped to the interior against contracts and stocks at this point are almost nothing, that is, stocks which are available to consumers.

Most of the small business that comes to the surface results through resales by consumers in the central west, mainly Detroit and Cleveland. A buyer coming into the market for 98-99% virgin, would undoubtedly be obliged to pay 27.00c per pound at Detroit, whereas should a seller be compelled to make a sale it would be difficult to realize over 26.00c per pound Detroit for car lots.

As the automotive industry is less active, manufacturers need less aluminum, but thus far the expected recession in prices of aluminum has not taken place. Consumers and dealers have requirements well covered for the next few months and probably even for the remainder of the year at considerably lower prices than those now prevailing. Under the circumstances, any metal of-

ALUMINUM, ANTIMONY, SILVER AND STERLING EXCHANGE QUOTATIONS IN JULY

Day	Aluminum	Antimony	Silver — N. Y.	Silver — London.	Sterling Exch.
2	26.25	6.90	.62¾	30½	$4.57⅛
3	26.25	6.90	.62⅞	31 1/16	4.55⅞
4	.....	....	.....	30 13/16	....
5	26.25	6.95	.62⅞	31	4.55⅛
6	26.25	6.85	.63⅜	31 5/16	4.56¼
7	.....	....	.63¼	31¼	....
9	26.25	6.80	.63⅝	31⅜	4.56½
10	26.25	6.80	.63⅜	31¼	4.57⅜
11	26.25	6.87½	.62¾	30¾	4.58½
12	26.25	6.87½	.63	30⅞	4.58½
13	25.26	6.87½	.62¾	30 13/16	4.59⅞
14	.....	....	.63¼	30⅞	....
16	26.25	6.87½	.62⅞	30¾	4.59⅜
17	26.25	6.87½	.63	30 15/16	4.59¼
18	26.25	6.87½	.63	30⅞	4.59¼
19	26.25	6.87½	.63¼	31	4.59⅜
20	26.25	6.95	.63	30 15/16	4.59⅜
21	.....	....	.63	30 15/16	....
23	26.25	7.10	.63½	31⅛	4.59½
24	26.25	7.12½	.63⅛	30 15/16	4.59½
25	26.25	7.25	.63⅛	30⅞	4.59⅝
26	26.25	7.40	.63	30⅞	4.59¾
27	26.25	7.50	.62⅞	30 13/16	4.59⅛
28	.....	....	.62⅝	30 13/16	....
30	26.25	7.75	.62½	30¾	4.57⅜
31	26.25	7.75	.62⅝	30⅞	4.56¾
High ..	26.50	7.80	.63⅝	31 1/16	4.59⅞
Low ..	26.00	6.75	.62½	30½	4.55⅛
Aver. .	26.25	7.05	63.01	30.95	....

fered for resale in the near future will be difficult to dispose of except at concessions.

Importers continue to ask 27.00c to 27.50c for 99% plus and 26.50c to 27.00c for 98-99%. These prices however, are almost entirely nominal in the absence of transactions of any moment. In the New York open market prices are nominally quotable at 26.75c to 27.75c for 99% plus and 26.00c to 26.50c for 98-99%.

The large domestic producer continues to confine ingot sales to meeting the requirements of its regular customers. So far as the general market is concerned the domestic producer is confining sales to finished products making fewer and fewer sales of ingots thus confirming the monoply existing in the domestic market.

In the first five months of this year imports of aluminum, were 8,104 tons against arrivals in the first five months of last year of 7,370 tons. Exports in the same period were 793 tons this year, against an outgo last year of 735 tons.

ALUMINUM PRICES.

Open market quotations on virgin aluminum 98-99% pure, in New York.

	1923.	1922.	1921.	1920.	1919.
Jan. ...	22.75	17.74	22.86	32.00	33.10
Feb. ...	23.25	17.33	24.50	31.83	32.26
Mar. ...	24.95	17.52	23.44	31.50	29.81
Apr. ...	26.00	18.06	23.25	31.61	30.67
May ...	26.24	17.92	23.06	31.95	32.21
June ...	26.25	17.87	22.75	32.00	32.83
July ...	26.25	17.87	22.62	32.00	32.57
July ...	.....	17.87	22.62	32.00	32.57
Aug. ...	.....	17.87	20.22	32.21	32.23
Sept. ...	.....	18.26	19.02	31.44	32.50
Oct.	.....	20.51	17.85	29.12	32.50
Nov. ...	.....	21.66	17.50	27.80	32.50
Dec. ...	.....	22.52	17.50	23.83	32.48
Av.	.....	18.68	21.21	30.61	32.14

DOLLAR'S PURCHASING POWER ESTIMATED AT 65 4-10 PRE-WAR CENTS.

Irving Fisher, professor of economics at Yale University, reports that prices obtaining during the week ending August 4th averaged 153% of pre-war level. The purchasing power of the dollar was 65 4-10 pre-war cents.

The price average for July was 153% of pre-war level and the dollar's purchasing power was 652-10 cents.

Powdered Coal Furnaces—Furnaces in which powdered coal is to burn must be large enough, and be correctly shaped so that the coal may burn completely without impinging on the brick work, and must be provided with facilities for removing the ash, states the Department of Interior in Bulletin 217, just published by the Bureau of Mines. When a furnace previously heated by coal burned on a grate, gas or oil, is to be transformed into a powdered coal fired furnace, the furnace may or may not have to be modified in design to suit powdered coal. Except for boiler furnaces, very radical alteration of design is unusual. At most the change consists usually in enlarging the furnace. But no furnace should be fired with powdered coal without the advice of experienced engineers, who will either approve the application of powdered coal to the furnace as it exists or carefully re-design it so that it may be economically operated with powdered coal, using the best available means of disposing of the ash. —**Industrial Management.**

A Far-reaching Decision—A decision handled down by the United States Supreme Court, invalidating the law passed in the state of West Virginia compelling natural gas companies supplying gas taken from within the state to supply consumers within its borders in preference to those outside the state, should have a healthy effect upon some other state legislative bodies who have apparently forgotten that their respective states are still parts of the United States. Therefore the decision against West Virginia is virtually a decision against those states that have proposed laws against exportation of power from the state where it is generated. It is difficult to imagine what would happen if each state had absolute control of the natural resources within its borders and attempted to exercise those rights. If, during last Winter's coal shortage, the state of Pennsylvania had been granted the power to supply its own needs for coal without due regard for other states that depend upon this source for a supply, the shortage would have been much more acute. The United States Supreme Court's action amounts to a decision that the nation's interests cannot be subjugated to any particular state.—**Power.**

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Steel and Metal DIGEST

VOL. 13 SEPTEMBER, 1923. NO. 9

THE BUSINESS SITUATION

Conservatism is still the most dominant feature of business. The present favorable features are sound money and credit positions, light inventories and heavy railroad traffic. In some lines of trade there is already evidence that seasonal improvement is taking place and a further quickening of business is to be expected in the next few months. The large earnings of labor, the continued high wage level and full employment in industry means extended prosperity for food products and other necessities of life. These elements combined indicate a fair degree of general prosperity for a longer or shorter period.

The enormous volume of rail traffic is impressive. Throughout August car loadings averaged considerably over 1,000,000 cars a week and during the week ended August 25th a new maximum record for all time was made in the loading of 1,069,932 cars. The previous maximum record was made in the week ended July 28th when loadings were 1,041,044 cars. The movement of general merchandise alone also was record breaking.

Agriculture.

The agricultural situation has improved as shown in the advances of prices for live stock and corn. Even the wheat outlook has improved decidedly. In manufacturing industries, however, there is less of encouragement. Textile manufacturers are handicapped by narrow margins of profit. Costs of production have been elevated by increases in wages to labor and high prices for raw material. Usually these increases are passed on to the consumer but the public now rebels against paying higher prices for finished goods, so that advances are made with difficulty.

An increasing volume of business is being done in cotton goods but the situation is far from satisfactory. Buyers of cotton goods have been reluctant to pay higher prices which manufacturers contend are necessary in view of the position of raw cotton. The outlook for woolens is not encouraging for the same reason, that is, higher wages and higher prices for the raw material. Buyers are purchasing for forward delivery with marked reserve and silk goods feel the effect of light sales because of high prices. The reserve of the ultimate consumer is reflected in light retail purchases and the latter results in cautious buying by wholesalers. Manufacturers' outlet therefore is narrowed. The shoe trade is exceptional in experiencing increasing sales of importance.

The Japanese catastrophe has naturally had a strengthening effect upon silk prices. It has also caused some increase in demand for cotton goods, for steel and for copper, but the effect of these purchases, present and prospective, is being exaggerated.

Wages—Living Costs.

The menace to the fuel situation through the anthracite coal miners' strike has been removed by the settlement of the difficulties between coal producers and union labor. While the industry welcomes peace in the coal regions it deprecates the outcome to the extent that miners' wages are increased, not only because an advance in the wage scale is not justified by the relation between wages and the cost of living but also because labor in other lines, particularly in transportation, will be encouraged to make similar demands. Statistics show that since the latter part of 1919 wages

have risen above the general prices for food products and since the middle of 1920 they have been maintained above the general cost of living. Today the tendency is even toward a wider divergence between costs and wages paid to labor.

Labor Must Liquidate.

It is self-evident that labor cannot permanently receive wages double those that were commanded in the pre-war period while commodity prices are only 50% above the prices of the same period. The drastic deflation in inventories and commodity prices which took place in 1921 was the direct result of maintaining prices above the wage level. The same result will follow the high level of wages. Eventually labor must be liquidated. There must be an equable adjustment between wages paid to labor and general cost of living. It is the inflated position of labor today in relation to commodities that keeps the spirit of caution alive among consumers and as it is the consumer who gives final orders to industry so manufacturers and business men generally must heed the warning. Permanent business improvement cannot be expected while this unbalanced state exists although temporarily full employment of and high wages to labor indicate a continuance of a fair degree of activity, especially in retail trade during the Fall months.

Under present conditions, therefore, we may anticipate some moderate recovery in commodity prices in the near future although there is no warrant to expect a return to the high levels that were maintained during last Spring. As pointed out some months ago the general trend of commodity prices is downward, the new business cycle having begun in the Spring of 1920, but of course there are constant fluctuations in prices.

Limit to Wage Advances.

Our position should not be misunderstood. The wage-earning class is entitled to as high wages as it can obtain under fair conditions. There should be general rejoicing in any improvement in the status of the wage-earning class which comes as a result of improvements in industry, that at the same time raise the condition of all producers as well. In the light of the recent authoritative showing of the relation between wages and living costs made by the New York State Department of Labor, it is evident that workers in mines and factories and upon the railroads cannot justify claims to higher wages today at the expense of producers of food.

Steel Industry.

Readjustment of hours of labor and of wage scales in the steel industry is now in process. It is estimated that this readjustment, made necessary by the elimination of the 12-hour day in continuous departments, will cost the steel companies upward of $2.00 a ton in producing steel products. The exact increase in cost, however, cannot be determined for some time. The fact that the steel plants have been operating at a very high rate for the last eight months would seem to indicate that the cost of production, with the largest interest at least, has been reduced rather than increased. This outcome seems probable because the steel industry operates under the law of decreasing costs and increasing returns; that is, as output is increased the unit cost of production is decreased and consequently earnings per unit are larger. So long as the steel industry is enabled to operate at an average rate of over 75% of plant capacity, there seems no reason to believe that the recent adjustment in wages and working hours should call for higher selling prices for steel products. Reports that higher selling prices are contemplated have been circulated but apparently without any firm foundation.

In fact, under ordinary conditions lower rather than higher prices for steel products should be expected to result of the high rate of plant operations. Consumers are entitled to the benefit, to some extent at least, from improved conditions in the industry and unless they do benefit the reaction upon producers will be unfavorable. Labor, however, is absorbing most of the benefit that has resulted from high rates of operation this year.

A Trade Barometer.

Under competitive conditions and long time operations there is always a tendency for the selling price of commodities to equal the cost of production plus a fair profit. The conditions under which pig iron is manufactured and sold cause it to be regarded as an excellent trade barometer. The consuming demand for

the metal is sensitive to changes in general business conditions and the supply can be readily adjusted to meet the demand. Year in and year out selling prices for and output of pig iron rise and fall almost together.

In the last month or so prices of pig iron have fallen $6.00 to $8.00 a ton. During the same period prices of finished steel products have remained almost stationary. Under ordinary conditions, unless there is an advance in pig iron prices the selling prices of steel should decline. Only about 25% of pig iron production, however, is merchandized and of this amount only about 30% is steel-making iron. Nearly 75% of the total production is made by steel companies for their own use in the manufacture of steel. Steel prices are not highly competitive but those of pig iron sold in the open market usually are.

Marginal Producer

Recently, however, an arbitrary effort has been made to maintain prices of pig iron at the cost of the marginal producer. This effort is the result of the decline in prices close to, if not below the cost of the marginal producer. The lower cost producers nave been selling iron from $1.00 to $2.00 a ton below the nominal pegged price, at least in the territory east of Allegheny Mountains.

These latter prices have been made public only with great reluctance. It happens therefore that pig iron is a less reliable barometer of trade conditions today than when the market is open and free.

Pig iron production with the steel companies is a part of the general manufacturing process of making steel products. It is only when they sell their surplus pig metal in the open market that they must meet competition. In the last three months steel companies as well as merchant producers have been blowing out furnaces. The daily rate of production on September 1st was the smallest since January this year. The reduction in iron output in August was 6½% from the preceding month while steel production fell off 3% as compared with the preceding month, the August output being at the smallest rate since December, 1922, yet the industry in August maintained a rate of 80% of capacity.

Unfilled Orders Down

Large reductions in unfilled orders on the books of the steel companies in August should be regarded as a favorable rather than an unfavorable feature. This process has been going on at an increasing rate sence March. No reduction in steel prices generally can be expected while large orders remain unfilled because, as a rule, when the price schedule is reduced consumers having unfilled tonnages on the steel companies' books receive the benefit of the reduction. Small current orders taken by the mills in the last three months were largely the result of the heavy buying early in the year, in fact, many consumers overbought because of the fear of not obtaining deliveries when wanted. Readjustment was necessary.

Railroad Equipment

Outside of the rail mills steel plants have received very few orders from the railroads. The paucity of railroad equipment buying in the last four months has been a notable feature but this was largely because of the unusually heavy buying in the first four months of the year. Locomotive and car shops, having capacity well sold into the fouth quarter of the year, were in less favorable position to accept appreciable orders. Railroads, however, in August helped the steel mills in anticipating a portion of their 1924 rail requirements.

Automobile manufacturers have placed some supplementary orders for steel products but motor car production is now waning. Structural steel work has been slowly receding since March, August orders for fabricated steel being the smallest since November, 1922. Agricultural implement makers have not been conspicuous buyers of steel products for months. Usually there is a general falling off in orders during the Summer and a quickening in the Fall. A revival in buying of some products is confidently expected in the next 60 to 90 days but the most optimistic producer or consumer is not expecting a return to Spring activity.

Copper Industry

Copper producers also are expecting better things to happen in the next few months. The most significant development in the copper industry however, is the evidence that imports since the first of the year have been within about 7,000,000 pounds a month of the

average monthly exports. This fact emphasizes the gradual elimination of the high cost producer in the United States. As consumption decreases and marginal cost of production drops the low cost producer in South America strengthens his hold upon the American market. In the last month the decline of ¾c a pound in the price of unwrought copper has eliminated more high cost mines from the active list, as copper mining is a primary industry, producers being handicapped by the law of increasing costs and diminishing returns. As soon as this reduction in smelter output is reflected at refineries the position of the industry will be automatically improved, in fact there is some reason to believe that the recent drop in prices has discounted some unfavorable developments.

Copper Future

In the long run the position of the low cost copper producer will be found an enviable one because as the fuel situation becomes more critical, as it undoubtedly will, the development of hydro-electric power will be encouraged. Large amounts of copper will thereby be needed. It is the high cost producer who will suffer; but in business, as in nature, it is the fittest who survives.

In solving the fuel difficulty crude petroleum should find a prominent place, but before this can happen, prices must be reduced to a point where increased consumption and decreased production meet. This will stop the additions to the enormous supply already in storage and give an opportunity for the gradual absorption of the heavy stocks from which the industry has suffered for many months. Thus far only gasoline prices have reflected the enormous supplies and to the extent that gasoline has declined the automobile industry has been benefited.

Foreign Trade

The large productive capacity of both raw and manufactured products calls for a substantial increase in foreign demand to increase industrial activity, but with our relatively high prices we are checking rather than encouraging European demand. The high price for American cotton is a notable instance. At 25c and higher Europe, while preferring American cotton, seeks substitutes in cotton grown in Egypt, Brazil Peru, West Africa and the East Indies. It is pointed out that Manchester spinners cannot pay the American price for cotton, turn it into manufactured articles and compete successfully in the international markets. Today the American cotton made product sold at Liverpool, is less than one-half of the total produced whereas it used to constitute three-quarters of the business transacted.

Other foreign developments continue to be of concern to American business men. The Ruhr situation is probably no worse than it has been but the economic conditions of Germany has gone from bad to worse. The Russian situation while quiescent is still a thorn in the economic flesh. The Italian-Grecian complication is about to be adjusted by the acceptance of the Ambassador's proposals by Greece and the Japanese catastrophe has done little more than divert attention from European ills temporarily. Reconstruction in Japan, however, will probably be more readily dealt with than the currency depreciation in Germany and Russia.

Foreign Debts

The settlement of foreign debts due to the United States Treasury is a matter of grave concern and it is not fully appreciated, apparently, by the people at home or abroad. It is a most difficult problem and according to the National City Bank it affects the prospect for world peace in years to come. "The economic questions involved are directly related to the problem of finding foreign markets for our surplus products and thus restoring the industrial equilibrium. * * * The interests involved are so great and the present situation is so critical that the people of all sections of the country should be giving their best thought to the subject." Under normal conditions there is always a tendency to adjust supply and demand. Any movement that suddenly creates an unusual flow of products into the international markets without stimulating a compensating return flow is sure to cause disturbance through the dislocation of economic factors.

Taken all in all it is not surprising that conservatism should still be the most dominant feature of business.

EQUALIZATION AND NORMALS

There are a few outstanding and self evilent truths about what we call "the course of business" that are often overlooked. There are various reasons why we overlook them. One is that we busy ourselves too much with details. Another is that we have in us, although of course we are too proud to admit it, a sort of faith in magic or the supernatural. We may not put as much trust in the efficiency of a dead cat to produce certain results as Tom Sawyer did, but we are never as much grown up as we think we are and we have some of that in us. Our faith in curves is of that order, as is the greater reliance we unconsciously place on a statement after it has been printed on paper than before.

One of these truths is that markets are made by men and not by materials. Stocks go up and go down, but they do not do it of their own accord. They are put up or put down. A commodity price does not advance or decline directly with the conditions in that commodity, but with the appraisals men make of those conditions. If three-fourths of the wheat in the country were destroyed the market price of wheat would not advance until some men learned of the destruction, and very likely both a buyer and a seller would have to know before anything occurred in the price. One will say this is ridiculously simple. Precisely, and that is why it is so often overlooked.

Another truth is that in an actual trading market, not one that is quoted on the basis of a mere asking price or a mere bid price, there is always equalization or a trend towards immediate equalization. A market is often described as "one-sided" but in such a case it is moving towards equalization as rapidly as the machinery of the market will admit. Men do not give away their commodities to the buyers nor do the buyers make a present of their money to the sellers. This, too, is so simple that it is often overlooked. The punishment may come slowly, or we should not overlook. If the law of gravitation did not work instantly we should in all probability overlook it too, and be dropping things on our toes.

One of the errors we commit on account of overlooking these and other obvious truths is that we are constantly looking for a "normal" in business when it is impossible for there to be such a thing, while if a normal were reached it would be departed from as soon as one party got the edge on the other.

In studying charts depicting the course of business a few, but probably not very many, make the error of assuming that business in future will go according to the chart. Many, and probably the majority, study the charts so as to be posted as to what the other people in the country have before them, and not be at a disadvantage. Always there must be action and reaction, a trend towards equalization. If the business cycle were infallible and everybody believed it our good times would simply be turned into bad times and our bad times into good times, which simple **reductio ad absurdum** may furnish a little food for thought.

STEEL PRODUCTION AND CONSUMPTION

Production or steel ingots in the first eight months of this year has been about 30,500,000 gross tons, or at a rate of nearer 46,000,000 than 45,000,000 tons a year. Inasmuch as consumption is never ascertainable and must be judged simply by the apparent scarcity or plentifulness of steel in connection with the known production, some general comparisons are in order for testing whether or not this production appears heavy or otherwise.

The natural tendency is to compare with 1920, the only year since the war, and until now, in which the steel mills have had occasion to run at the fullest rate they could attain. In the first eight months of 1920 production was about 28,000,000 tons. This year leads 1920, to September 1st, by about 2,500,000 tons, or 9%. That difference, in itself, would certainly not be enough to indicate overproduction this time. The consuming capacity of the country could grow 9% in three years.

One must, however, consider also the antecedents of the two years. In 1919 there had been the iron and steel strike of September 22d and the coal strike of November 1st. In 1922 there had been the great coal strike. In each year production of steel was less than desired. The 1919 ingot production was 33,694,795 tons, the 1922 production 34,568,418 tons. The increase is 873,000 tons or 2.58%. The increase is practically negligible.

Thus there has been no great difference between steel production from January 1, 1919, to September 1, 1920, and production from January 1, 1922, to September 1, 1923. Te increase is from 61,700,000 tons to 65,100,000 tons, or 5.5%.

It may as well be admitted that steel production in the past six months has been on the defensive. The mills have not operated at capacity but they have produced more than it was expected they could produce. Hence some observers have felt that there must be overproduction and that eventually a situation would develop that would be apparent to everyone, of there being too much steel. The rejoinder of these observers to the showing just made, that production of the past 20 months has been only 5.5% greater than production in a past period of more or less similar appearance, would probably be that after the collapse in 1920 it was found that there was too much steel and too much in manufactures of steel, requiring a year of liquidation.

In fact, it has been the common experience that when demand for steel slumps it is found that there are "large stocks." It looks as if mistakes had been made. Possibly, however, there is another way of looking at it. The main point may be that circumstances change, whereby quantities of steel and of manufactures of steel that are not large, but only natural and proper, for active times, are large when times become dull, when the rate of turnover is smaller all around and when quick deliveries can be made all along the line.

TRANSPACIFIC COMPETITION IN IRON AND STEEL

"The movement for the establishment of the much desired iron and steel plant in British Columbia is having its ups and downs," says **Iron and Steel of Canada.** "The examination of iron ore deposits by Dr. G. A. Young, of the Geological Survey, is progressing steadily, this season as last, and reports available are to the effect that the magnetic ore to be had on the coast has proved itself satisfactory under his scrutiny. A good deal of additional propaganda is being spread in favor of a substantial public subsidy for the Coast Range Steel Company.

"A significant item appears in current news from the United States. A cargo of pig iron has entered, in spite of the tariff, from India. No doubt this is merely an experimental shipment, or one made under unusually favorable circumstances; but it draws attention to the present position of the largest potential producer of iron and steel on the Pacific coast. The Indian Ocean is far removed from the Pacific; but essentially its coasts constitute an integral part of the wide-spread Pacific market.

"The modern iron and steel industry of India is now an important member of the group of lesser producers that includes Canada, Italy, Japan, China and Sweden. It is the youngest of these, and bids fair not only to outstrip them all, but in time to rival the major producers, the United States, Germany, Great Britain and France. It is in the midst of the largest potential market in the world for iron and steel products, which includes most of Asia with the exception of Japan — a market that includes by far the larger part of this globe's inhabitants. Already the influence of home-made iron and steel is beginning to have an effect in broadening the market in India. The possibilities are gauged by its myriad population of over three hundred millions.

"The deposits of iron ore in Bengal are almost without rival in purity, size and accessibility. Coal is not so abundant nor is it ideal for metallurgical use but there is sufficient for a vast annual production of iron and steel. Unlike the negro workmen of the southern United States, the Indians are occustomed to steady and consistent, though not arduous, labor, and they can be depended upon to provide an effective working force for many years to come. Most of the capital involved in the erection of the plants has been provided by native Indian investors, notably by Mr. Jamshedpur Tata of Bombay; and this is sure to be reflected in sounder and more effective management than if foreigners were reaping the financial benefit. The blast furnaces, steel plants and rolling mills are of the most modern and efficient design, modelled chiefly on recent American installations, and are on this account well able to compete on favorable terms with the best plants in the world."

THE BUSINESS OUTLOOK

By Alexander Vincent of the Brookmire Economic Service, Inc.

Since the upward movement of business was arrested last March, commodity prices and productive activity as well as security price trends have shown a fairly steady decline. These declines have been accompanied by various explanations from different sources and, as time has gone on, a growing note of pessimism has been noticeable for the greater part. The most significant development of past month or so has been a gradual lessening of these pessimistic surveys of business and the future, and while it would not be true, perhaps, to say that there now has set in a complete reversal of opinion, yet it is decidedly true to say that a greater degree of confidence regarding the immediate future of business is now present.

When we dig down below the surface and find that practically at no time during period under discussion has balance of factors normally affecting business trends been in an unfavorable position, the importance of the improved sentiment can be more readily appreciated. Men who viewed the developments since last March from a broader angle and with the record of past history and cycle movements of business before them were at no time deceived as to the true character of those developments. A fairly imposing array of factors could have been drawn up tending to show that the downturn from March levels did not mark the beginning of the liquidation period of the cycle that began in mid-1921. Thus purchasing power throughout this period has been ample. Banking funds have been more than adequate, and such pressure as was brought to bear by the banks last Spring, with a view to putting the brakes on business expansion, was of an arbitrary rather than a forced character. Again other symptoms characteristic of the final stages of a prosperity period were conspicuous, through this movement by their absence. There was no wild speculative activity. The country's financiers and government officials who can, as a fairly regular thing, be counted upon to do all in their power to have activity continue, even in many cases after the underlying conditions do not warrant continued expansion, in this instance pursued the opposite tack and united in doing what they could to talk business down.

A still further analysis of developments during the past six months brings out two additional conditions throwing light on the true character of this movement. In the first place, consumer buying, as indicated by car loadings, sales by retail stores, chain stores, and mail order houses, failed to reflect the letup record in production centers and in buying by jobbers and dealers, and finally, the fact that commodity prices and productive activity began to ease off simultaneously with security prices instead of continuing sustained or mounting to higher levels for six months after the decline in security prices, was a point of significance in this movement.

It is not the purpose here to attempt to review the causes which actually brought about the decline in movements from last March. A fair idea of the causes, however, might be found in that much-abused term "psychology of buyers and sellers." The very radical losses of the 1920 depression were still fresh in the minds of everyone and the very real dangers attending inflation needed but little publicity to bring about an attitude of caution. Adding to this the fact that the downward movements were accentuated by the development of the seasonally dull Summer buying period and that much of this normal letup in buying was interpreted as further evidence of weakness in the situation fundamentally, and we get some small idea of where we might look for the causes which resulted in this movement against the fundamental trend.

In an article in the Steel & Metal Digest some months ago we took occasion to review six fundamental factors and pointed out that the mathematical position of the balance of those factors at any given time could be shown by the records of the past to have a fairly fixed correlation to business trends. The factors in question were speculative activity,
the extent to which the amount of goods available for consumption is increased

or decreased by export and import movements, the purchasing power of people generally as measured by the speed with which bank deposits are checked out, the extent to which that purchasing power can be augmented or decreased by easy credit, and finally, the extent to which domestic conditions are likely to be affected by conditions abroad, as indicated by commercial paper rates abroad.

There have been during the past six months a few occasions in which the balance of these factors has been unfavorable, but for the greater part of the time that balance has been favorable for future business and has indicated, in consequence, that the business situation was and is fundamentally sound. At the present time the most unfavorable of the six factors in question is the foreign money market rate which reflects the extent to which conditions here are held down by unfavorable conditions abroad. The export-import ratio during part of that time had been quite unfavorable but during later months has been showing an improving tendency. The other slightly unfavorable factor was the volume of production factor, but this also, with the letup in activity of late, has been gradually tending to improve. The purchasing power factor, the speculative factor, and the banking factor are all favorable now and the general balance justifies the conclusion, as already indicated, that business today is fundamentally sound.

The fact, then, that during so great a part of the past six months the underlying situation has been a favorable one and that, despite that favorable position, activity and price levels have been on a downward trend, brings out the importance of the changed sentiment gradually developing. Usually confidence revives and sentiment improves as rapidly as did the pessimistic sentiment that preceded it. The fact that the record of the past six months discloses that there has been no appreciable letup in consumer buying makes inevitable the conclusion that the shelves of intermediate holders of stocks, who have been most obviously out of the market during recent months, must be in a fairly depleted condition. This situation and the lack of any wild speculative activity over past months has made for a healthy condition, and it would seem that these factors, having a seasonal tendency for improved Fall buying behind them, must soon result in an upturn in business movements generally.

Once the business man can be persuaded that there is a period of improvement in prospect, his next concern has to do with the probable duration of that period and to some degree its probable extent. The position of the factors we have sketched above would seem to justify the unqualified statement that we can look to see the improvement that is in prospect continue at least for the remainder of the present year. Beyond that the momentum of Fall buying would more likely than not carry conditions on above normal at least through the Spring months of 1924. Whether or not active business could continue much beyond that time would seem to involve one, at least, of two other questions widely discussed among business men at this time.

First, it involves the foreign situation and the possibility of a settlement of the vexatious Ruhr question. Again, the extent to which we are dependent upon foreign buyers to take over our surplus food stuffs links this question very closely with the second problem widely discussed, viz. the agricultural buying outlook. The recent declines in wheat prices have attracted a very wide publicity. There has resulted in consequence a pessimism regarding the outlook for farm purchasing that would seem, after more detailed study of the situation, wholly disproportionate to what the conditions warrant.

Of the total farm income of the country, wheat income constitutes only about 8% on the average. A detailed survey of latest crop reports on present market values justifies the conclusion that while, of course, in comparison with other big buying groups, the farmer is still in a disadvantageous position economically, yet the total crop values this year will not be any smaller, at least, than they were last year. The amount of goods consumed in farm sections last year was fairly sizable and consequently those who are seeking to read out of recent movements of wheat prices the conclusion that active business this Fall is impossible have no logical ground

for their position.

It must be so apparent, that the statement can be made without proof that a settlement of the Ruhr situation would result in a marked impetus being given business conditions in this country. A settlement of that question would also result in such increased demand for wheat, cotton, and food stuffs generally as would result almost immediately in a betterment of farm purchasing power. So chaotic are conditions abroad that it is rather idle to speculate as to when that situation will be settled and the fact that domestic conditions by themselves are sufficiently favorable to indicate improved business for the rest of the year at least makes such a discussion of rather secondary importance. Meantime, however, the question as to whether or not prosperity in this country can continue beyond the Spring of next year depends, it would seem, upon developments in the Ruhr, and it is from this angle that the question is of importance to the business man. About the only thing that can safely be said regarding the foreign situation at this time is that the fact that the German mark has now declined to a point where even internally it has practically no purchasing power renders it practically certain that conditions as they are now cannot be allowed to go on much longer. Any long continuation of present conditions would mean suicide and history is not overrun with instances of nations deliberately committing suicide.

A question frequently raised with reference to the possibility of improved business getting under way has to do with whether or not we could expect truly active business without the building and construction industries playing a part in such activity. Those who raise the question assume that building costs are at such prohibitive levels that, taken in conjunction with the extent to which supply has caught up in the past two years with demand, there is no reasonable basis for believing that building and construction work can develop much activity during the remainder of this cycle. An interesting development along this line is found in an analysis of recent figures covering contemplated building. The total of such contemplated activity compiled on a comparative basis with former months reveals that in the month of July the amounts so reported broke all previous records. The coming of the Fall months, the improved sentiment already referred to, together with concessions in various building material markets account for this upturn in contemplated projects. While it would seem that a smaller amount of this activity may be expected to be pushed to completion than is normally the case, yet the total is sufficiently large to warrant the belief that within the next few months there will be another upturn in permits and building activity and that this industry of itself can be expected, for several months longer, at least, to add additional strength to the generally improved business conditions that seem in prospect.

LOADING OF FREIGHT AT RECORD BREAKING RATE

Loading of revenue freight continues the heaviest for this time of year in the history of the United States, according to the weekly reports of the railroads filed with the American Railway Association.

In the week ended August 18th, 1,035,741 cars were loaded, the second highest total for any one week in history. This was only 5,303 cars under the record week of July 28th, when 1,041,044 cars were loaded.

Compared with the corresponding week last year this was an increase of 189,475 cars, or 22.4%, while it also was an increase of 220,594 cars over the corresponding week in 1921. In the eastern district freight loading increased 26.3% over the same week last year, when, however, the strikes of both miners and railway shopmen were in progress. Loading in the southern district increased 22% during the week compared with the same week last year, while in the western district the increase was 17.7%.

The total for the week of August 18th, however, was an increase of 62,579 cars over the preceding week this year, when freight loading was reduced, due to the observance of a day of mourning for President Harding.

Loading of merchandise and miscellaneous freight, which includes manu-

factured products, totaled 589,352 cars. This was not only an increase of 38,606 cars over the preceding week, but was an increase of 42,873 cars over the same week last year, and an increase of 96,603 cars over the same week two years ago.

Coal loading for the week amounted to 189,073 cars, 11,814 cars above the week before. Due to the miners' strike last year, however, this was an increase of 107,622 cars over the same week one year ago, while it also was an increase of 36,560 cars over the same week in 1921.

Coke loading amounted to 13,587 cars. This was not only an increase of 653 cars over the week before, but was an increase of 5,405 cars over the same week last year, and an increase of 9,063 cars over the same week two years ago.

Ore loading totaled 80,759 cars, 1,070 cars less than the preceding week, but 13,224 cars above the corresponding week last year, and 48,772 cars above the same week in 1921.

Compared by districts, increase over the week before in the total loading of all commodities were reported in all except the Pocahontas district, which showed a small decrease. All districts, however, reported increases over not only the corresponding week last year, but over the corresponding week two years ago.

Year's Loadings to Date Nearly 31,000,000 Cars.

From Jan. 1st this year until August 18th, inclusive (a period of 33 weeks), 30,999,244 cars were loaded with revenue freight. This is the largest number loaded during any corresponding period in history, exceeding by 5,195,251 cars the corresponding period last year, and by 6,904,844 cars the corresponding period in 1921.

Loading of revenue freight this year, compared with the two previous years, follows:

Week ended	1923	1922	1921
August 4 ..	1,033,130	842,663	786,178
August 11 ..	973,162	842,690	808,269
August 18 ..	1,035,741	846,266	815,147
Total for year to date	30,999,244	25,803,993	24,094,400

COLLEGE-BRED ENGINEERS WITH OPERATING COMPANIES

"A reciprocating engine belted to a dynamo, a wooden switchboard with a couple of shaky knife switches and a gravity voltmeter, 'Jim the engineer' in overalls, with a long-spouted oil can, and a begrimed fireman at a distance—what an attractive picture for a college student to think of as a possible career for himself, says the **Electrical World.** "True, this is only a picture of an irrevocable past insofar as the operating side of the industry is concerned, but do the best college boys of today understand that this is a picture of the past and that the real immense problems of design, construction and operation of large electric properties call for men of first rate ability?

"Perhaps the word 'operating' is the first obstacle encountered when one tries to arouse interest among the most energetic students in becoming public utility engineers. A guy in overalls shovels coal at one end and another guy, with a white collar on, collects money at the other end. The franchise excludes competition, a fair price is fixed by some commission, and that is all there is to it,' is a young graduate's opinion. Possibly if the word 'operating' were replaced by the word 'fighting,' 'struggling,' 'overwhelming' or some such forceful adjective, this career would appeal to real red-blooded American youths much more, and perhaps it would be more significant of the real activity of the men who keep our homes lighted and industries operating, rain or shine, through troubles little known. Somehow the words 'operating,' 'operative', 'operator,' suggest an anemic girl who slowly and automatically performs the same simple mechanical motion day after day, year after year.

"There is no use in blaming teachers of engineering for the evident ignorance among the students of the really great and perplexing problems of power generation, distribution and use. The best instructors teach neither the manufacture nor the operation of electrical apparatus. They teach the fundamental laws of nature in the form applied to electrical apparatus and circuits. It is for the leaders of the operating industry itself to make up their minds that they need the best young engineering

talent and to go after it as they have gone after manufacturers to produce better generators, better insulators and better cables.

"The principal manufacturers of power and communication apparatus have been spending considerable effort and money to attract the best young engineers and their endeavors are bearing ample fruit.

TOPICAL TALKS ON IRON

CXXIV - Steel for the Oil Industry

The ordinary industrial activity, consuming steel, has its ups and downs in activity and buys steel in keeping therewith. The agricultural implement industry buys more or less steel according to variations in demand from year to year for agricultural implements, and so almost all along the line.

There is one industry that presents a case that is quite unique, the oil industry. One is likely to think of the oil industry as a unit, active or not active, and a good or a poor buyer of steel in consequence. The oil industry, however, uses steel in relatively large tonnages in four entirely different ways. First, it uses casing, etc., in drilling wells and keeping them up. Second, it uses tanks on occasion to store oil. Third, it uses line pipe to transport oil to refineries and markets, including the seaboard for export. Fourth, much of the oil it exports goes in five-gallon tin cans. Of course there are various other uses of steel in connection with oil, but these four ways are outstanding.

Now, the changes that occur in the oil industry do not affect these four classes of steel consumption in the same way. Of course, if a new field is discovered it will produce demand for casing, probably also for tanks, and doubtless for one or more pipe lines. New fields, however, are only occasionally discovered.

Other things being unchanged, if the wells in existence do not produce enough, more wells are sunk, calling for casing. No additional tanks or pipe lines are required merely for continuing the production of a field. If production goes very well and demand is not heavy there may be but little demand for casing, but a rush of buying of tanks. If production grows gradually there is necessity for more pipe lines. With conditions unchanged there may be some laying of line pipe merely as an improvement. A regular line may be working well enough, but to lay another line to help out decreases the rate of flow and hence the pressure required to be produced at the pumping station. The first line may have been laid over a hill and the prospects of continued use may be so good that it will pay to lay another line around the hill.

Good production and poor production may lead to tanks being set up, to hold oil until pipe lines and refineries will take it. Also, however, it encourages exports, which means tin plate. Thus a low domestic consumption of oil may produce consumption of tin plate. There is no other industry that shows demand for steel whether conditions are good, bad or indifferent. Of course the forms of steel are different, but it is all steel.

As to tonnages of steel, a fairly good year means more than a million tons of "oil country goods." In the past four years only 1919 showed a production of less than a million tons. The term includes line pipe, on which there are no separate statistics gathered. Undoubtedly the production of line pipe has varied widely from year to year, but it may be guessed that generally it runs within the limits of 150,000 and 300,000 tons. There is also a little merchant pipe, often called full weight or standard pipe, used in the oil fields.

As to plates, the consumption for oil tanks will naturally vary widely. In an active year in this direction plates may run into the hundreds of thousands of tons.

In tin plate a fairly good year would probably mean more than 100,000 tons and with unusually heavy oil exports there might possibly be 200,000 tons used in this way.

In the whole four ways, therefore, the oil industry is likely to account for nearer two million than one million tons of finished rolled steel consumption in a year. Incidentally, of course, the oil industry helps other industries that consume steel.

LABOR PROBLEMS OF THE BRITISH MACHINE BUILDER

Albert Clegg, writing in the **American Machinist**, says of the above subject:

So far as Great Britain is concerned it is not strictly correct to refer to the present state of almost hopeless stagnation as fluctuation, since, apart from the all-too-brief boom which succeeded the armistice, conditions have gone from bad to worse with little apparent prospect of any immediate improvement. It is extremely doubtful if the British machine tool industry is working at anything like one-third capacity, for there are quite a few firms who are practically shut down, while a majority of the remainder are carrying on under an almost insupportable load of financial difficulty which is every day becoming more and more acute.

America, on the other hand, seems to have recovered with surprising rapidity, but even she does not appear to be yet able to absorb the maximum production of her own machine tool makers, though most other trades appear to be experiencing more or less of a boom. So far as general engineering is concerned, America is right up against a problem which has been agitating some of our British employers for some time, and that is the decreasing supply of skilled men. But whereas you are feeling the shortage already, it is with us more a question as to what will happen when trade recovers.

The men having been so long on short time or idle, it is not to be wondered that they are leaving the business whenever an opportunity arises. All kinds of oneman businesses are being taken up in the effort to make ends meet. There are practically no lads being apprenticed to the trade to make good the normal losses in man-power, so that the outlook for the future, when the long-looked-for trade revival comes along, is the reverse of promising. Speaking from memory, I believe the standard rate of pay for skilled engineers is 54 shillings a week, short of $14, and even this low rate cannot attract sufficient business to keep half the skilled men in the country fully employed. Can one blame the men for getting into other trades, or can one blame parents for refraining from putting their lads to such a poorly paid job? Street-car conductors, road-sweepers, and many other classes of unskilled labor, can all earn bigger pay, and one cannot, therefore, logically expect anything else but a labor shortage. It is almost inevitable.

Some time ago, I was informed by a British machine tool maker that he had been very much surprised at the number of his men who had gone into other businesses and other jobs outside the engineering trade. His trade had taken a turn for the better, after having been almost non-existent for many months, and he had written some of his old employees asking them to start work again. The response rather staggered him since only one man out of every four wished to resume. The rest had either started business on their own account or had found some other more remunerative job than machine tool making promised to be. This man's works are even now only running at something under half capacity, and yet he feels the effects of a shortage. What would be the position if every machine tool firm in the country were fully employed. There would be a very acute shortage which would continue until the remuneration became sufficiently attractive to encourage a fresh supply of apprentices, and until these apprentices had served the necessary length of time, four or five years, at least.

We can, therefore, make up our minds to accept the inevitable. For at least four years after trade recovers the shortage of skilled men will become more and more pronounced, because, while, during this period there will continue to be the normal shrinkage due to death, retirement, and so on, there cannot, in ordinary course of events, be any fresh influx of skilled labor until the end of that time, and even then, the supply will only be a comparatively raw contingent, with most of its wisdom teeth still uncut. It seems to me that for the next ten years at least, the supply of skilled engineers will be somewhat restricted, the consequence of which will be that machine tool prices, wages, and the values of other incidentals intimately associated with skilled engineering labor, will rise. All sections of the industry, individually and collectively, will then stand a possible chance of getting a little of their own back.

For those who can last out, there is a good time coming. The pendulum of trade will swing back and the survivors, both employer and employed, will reap the benefit of the operation of the economic law of supply and demand.

THE OBSERVER'S CORNER

The Observer was led to think of the subject of "seasons" by the insistence of a gentleman high in steel circles that there is altogether too much talk about seasons in steel. This is one of those things that we are just naturally inclined to take for granted while if we turn in to do some independent thinking doubts as to the correctness of our view arise quite freely.

After all, the human mind is very far from being a perfect thinking machine if we consider a perfect thinking machine to be the kind we should design if we were assigned the task. We are unconsciously influenced by various things in reaching conclusions, and if we were constructing a thinking machine we should not put in cog wheels to permit some of those things to influence the final conclusion. In particular, we get into certain habits and follow those habits when they do not altogether belong to the case. An acquaintance of the Observer used to talk always of "the best place" when the matter of going anywhere came up, overlooking the fact that the best place for our purpose might not be the best place for another purpose, or for different men, and if there really were simply one best place, how had the others survived? It was just his habit.

In order to get along in this world at all one must have the habit of looking at the brighter side of things. That is simply a practical fact, as one can see very easily by observing those who get along and those who do not. It is an unconscious operation when we carry this habit into our judgment of market conditions and if the steel market is dull in July and August make much of the notion that the market is always dull in those months, hence it is all right. Once started, we are likely to dilate on this idea and even get the notion that the market is duller than it is, by thinking that it just ought to be dull. There is a difficulty about it, however. If we allow this thing to become well fixed in our minds, then we begin on September 1st to look for altogether different things, and if they do not come we are disappointed. In the final round-up we are the worse off from having hunted up a bright side for the July and August performance.

The seasonal idea as to steel is not based upon activities in the consuming lines. These lines are so full of seasonal activities that the seasons overlap. Stove pipe sizes of sheets have one season and culvert stock another. The defense of the seasonal idea in steel would be that men are away on their vacations and therefore cannot buy. Do not steel salesmen take vacations and does one find it difficult to buy steel in July and August on that account?

This seasonal matter may be thought of from another viewpoint. Man is a gregarious animal. The typical individual likes to go with the crowd. If there is so much talk about seasons in steel, buyers may be impressed. They may not care a particle what the cause is, so long as they are assured the practice exists. Then either one of two courses may appeal to the buyer. He may feel like going with the crowd and buying when others do, being influenced by the force of example, or he may feel that he can strike a better bargain when others are not crowding the sales offices of the steel producers. The steel business is so conducted that the latter course is less likely to appeal than the former. In the matter of prices, there is more likelihood of cutting when there is a moderate volume of inquiry than when there is little. Discussion of details is not suitable for this department, but that is the fact.

This matter of the seasonal idea being adopted for psychological reasons rather than from scrutiny of actual material facts, has wider application. Men are always looking for change and the idea of there being a cycle in business activity naturally impresses itself. After we have had a spell of bad times men think good times ought to come, and vice versa. The business cyclists have been endeavoring to chart material things as producing the cycle. Perhaps there is a psychological influence at work also.

REMEDIES FOR SHORTAGE IN RAIL TRANSPORTATION

National Industrial Conference Board Reviews the Situation—Points Out That Regulation of Carriers Has Been Repressive—That Need of New Capital Is Continual—Transportation Act Is Conservative.

The National Industrial Conference Board has prepared and just issued a review, in the form of a special report, on the existing American railroad situation.

The report opens with a discussion of the importance of the railroads to the life of the nation, and then says with regard to the railroad situation today:

"A shortage of transportation facilities, rather than a shortage of cars, would better describe the present situation, since, aside from shortage of locomotives and shortage of cars, inadequate terminal, yard, trackage, shop and engine-house facilities are all contributing factors.

"The development of terminals and other facilities by the railroads has not kept pace with the needs of the country because of the difficulties under which the railroads have operated during recent years and because of their inability to raise the capital with which to make the improvements necessary adequately to handle the increasing amount of traffic.

"Inadequate facilities for the interchange of cars between railroads at connecting points, inadequate methods of passing freight through large city freight stations, inadequate engine terminal and shop facilities to permit the prompt repairing, turning and releasing of locomotives as they are needed for service, and an insufficiency of double trackage, passing tracks and sidings on the main lines are the principal limiting factors in railroad operation at present.

"In the responsibility for these defects the shippers share with railroad management, while the public through its legislative representatives is a contributory factor in the present impairment of railroad credit.

"The plan of the railroads to expend $425,000,000 on additional trackage and other facilities during 1923 should provide some relief. Further improvements along this line will be dependent on the restoration of railroad credit which is looked for in the near future.

Regulation Has Been Repressive.

"The more remote causes of car shortage and delays to shipments are the results of the system of regulation to which the railroads have been subjected since 1887. Until the passage of the Transportation Act of 1920, the attitude of the Government was repressive rather than constructive, from the point of view of railroad operation. In spite of the steady increase in commodity prices from 1900, the Interstate Commerce Commission refused to allow the railroads to increase their rates to meet the higher price levels. In 1914 the carriers in the east were allowed a 5% increase in rates, in 1917 they were allowed a 15% increase, and in 1918 an increase of approximately 25% was granted to all carriers. These increases, however, did not compensate for the steadily increasing cost of operation. Although economies in operation were effected, the railroads were unable to make the improvements which were necessary to keep up with the increase of traffic due to the normal growth of the country. Furthermore, the restrictions put upon the railroads by both State legislatures and Congress have been constantly growing until there is cumulative evidence that railroad development is in danger of being choked by extreme regulation which is against the best interests of the people as a whole.

"Under federal and State regulation the railroads as a whole have not earned returns adequate to permit the expenditures necessary to keep their plants and equipment in the best condition at all times.

Need for New Capital Continual.

"The ton mileage of the country doubles every ten or twelve years. In order to handle this increasing volume of traffic, the railroads should be constantly improving and adding to their plant and equipment. To do this requires a continual infusion of new capital, yet the rate of return from railroad invest-

ment has not been sufficient to attract this new capital. Most of the railroad financing of the last few years has been through bond issues, with the result that the financial structure of many roads is top-heavy due to the disproportionate amount of bonds outstanding in relation to the capital stock.

"On the other hand, the financing of additions or betterments, other than equipment, presents greater difficulties to the average railroad, and the ability of the railroad to accomplish such financing is dependent on its financial condition and the strength of its credit. Due to the inadequate return on railroad investment during the past years, the railroads as a whole have been unable to finance and provide themselves with the necessary terminals, trackage, shops and other facilities adequately to handle the normal traffic of the country."

Valuations Do Not Show Over-Capitalization.

With regard to the valuation of the railroads under the Valuation Act of 1913, the report says:

"Final valuations of some railroads have been published and tentative valuations of many other railroads have either been completed or are nearing completion. With few exceptions, the figures published by the Commission show that the value of the railroad property used in the service of transportation is equal to or greater than the total capitalization outstanding against such property; in other words, that there is no 'water' in railroad capitalization. Yet, in spite of the results of the valuation study, many of the legislators through whose efforts the Valuation Act was passed, assert that the valuation has not been fairly made and that the value of the property of the railroads in the United States is in the vicinity of $12,000,000,000 instead of the figure of $18,900,000,000 which the Commission established in 1920 as the basis of rates."

Transportation Act Is Constructive.

With regard to the Transportation Act, the report says:

"The Transportation Act recognizes that the authority to regulate must be accompanied by the responsibility for the effects of that regulation upon the railroads.

"The Transportation Act through its provisions as to rates, excess earnings and security issues gives the Interstate Commerce Commission almost complete financial control of the railroads.

Act Requires Rates Fair to Both Sides.

"The Transportation Act has brought about a change in the relation of the Interstate Commerce Commission to the railroads in that, for the first time, the Commission is required to fix a rate schedule sufficient to yield the roads a fair return on their valuation. Thus far, the Transportation Act has been the most constructive railroad legislation enacted, for it recognizes that the railroads are entitled to a fair return on their property investment. Prior to the passage of the Act, the Interstate Commerce Commission had no guide in establishing rates other than to keep them as low as possible, with the result that the railroads were obliged in many cases to contest rates that were confiscatory.

"The Transportation Act up to the present has not brought about the results anticipated at the time of its passage. The railroads as a whole have not during any year since their return to private control earned the amount set as a fair return. The period since the termination of federal control has been marked by many abnormal conditions in railroad operation.

Suggests Fair Trial for Transportation Act.

"A fair trial of the Transportation Act under normal traffic and industrial conditions may yet enable the railroads to earn a fair return on their valuation, and thereby to restore their credit and attract new capital with which to improve their facilities and to increase their equipment so that efficient movement of traffic may be accomplished at reasonable rates. The results attained during the closing months of 1922 and during the first six months of 1923 appear to indicate that the roads are improving their situation by reducing their operating expenses in proportion to their income, and as the effects of the coal and shop strikes wear away and the roads are not handicapped by adverse weather conditions, a still better showing may be expected."

NEGRO LABOR ON RAILROADS

"In a recent editorial we expressed a view not very optimistic about negro labor as a substitute for immigration," says the Railway Review. "Our opinion is based both on the lack of efficiency in negro labor and on the fact that the exodus of the negro from the southern states since the world war has been brought about by a combination of circumstances which will not always continue. Nearly a half million negroes are said to have gone north during the past few years. This migration, of course, cannot long continue, neither is there any assurance that their stay in the north will be permanent. It would be well for those who are contemplating using negro labor in large numbers to make investigation as to the source and permanency of the supply. The negro in the north is likely to prove less of a fixture than the European laborer landing on our shores. Many of them are likely to drift back to their homes in the south. Several of the southern states have already complained of the shortage of their working populations and have taken steps to regulate the activities of the "labor agents" who have been inducing the negro to go north. The supply of negro labor is certain to fluctuate between a prosperous or depressed north and a prosperous or depressed south. It cannot solve the question of a nation-wide labor shortage.

"Moreover, it remains to be seen how satisfactory will be the work of the negro in industry. This is a new field for him. He has been trained for, and accustomed to a rural life. It remains to been seen how he will develop under the opportunities being given him in many places in the north, particularly in the automobile, steel and railway industries.

"It is true he understands the English language better than the foreigner landing in our midst, but whether by nature or because of environment or lack of opportunity, it must be admitted that the negro worker is a slow thinker and slow in action. He is shiftless and slothful and is not considered as having any very high regard for the truth. He is unaccustomed to either the regular attendance at work or the discipline absolutely essential in an industrial plant. He prefers intermittent to monotonous work, with indoor work in Winter and outdoorwork in Summer. According to mortality statistics he is of shorter life and physically inferior to the white worker, being particularly susceptible to pulmonary troubles. Time will tell how he will adjust himself to the work of industry and how he will respond to the treatment received at the hands of his northern employer and co-workers. It remains to be seen whether he will improve or develop or whether his changed environment will merely aggravate his present weaknesses and vices. Meanwhile his employment in industry is likely to complicate the labor problem and to introduce racial problems into the homes and factories of northern communities. There is presented immediately the problem of housing and of segregation both of which should receive careful consideration."

UNUSUAL SITUATION IN MANGANESE SUPPLIES

One of the most unusual developments in the manganese situation of the American industry is the small apparent supply of manganese ore in relation to the domestic production of ferromanganese. It is commonly estimated that 40% of the manganese ore available is an index of the amount of ferromanganese produced.

On the basis of the amount of ore imported for the first seven months this year—104,212 gross tons— only about 41,680 tons of ferromanganese would be yielded from this quantity. The imports of 23,824 tons in July or about 14,900 tons per month to Aug. 1st, are the smallest for any year since 1913. In the face of this, however, American production of ferromanganese from such ore, the only raw material possible to use, has been to August 1st over 148,000 tons requiring theoretically at least 370,000 tons of ore.

On theoretical considerations alone then, less than one-third the amount of ore has been imported of that required or 104,200 tons against 370,000 tons. Manifestly the balance of the necessary ore cannot be coming from domestic mines. It is doubtful if it can have been left over from previous stocks, for imports of ore in 1922 were only 374,450 tons or 31,200 tons per month, the smallest receipts, with the exception of 1919 since 1915. The foregoing facts therefore, present a problem difficult to explain for it is a situation not paralleled in the history of the manganese industry the past ten years.

TECHNICAL AND COMMERCIAL ABSTRACTS

Restraint Order Against Use of United States in Industry—The use of the words "United States" in connection with products not made for or under the supervision of the United States government, is again condemned by the Federal Trade Commission. This ruling was handed down by the commission in connection with the advertisement and sale of paints and varnishes, which in this instance the commission found were labeled with words including "United States," or "U. S.," and accompanied by a picture of the figure known as Uncle Sam, which is popularly symbolic of the United States.—**Chemical and Metallurgical Engineering.**

WORK AND WAGES

Vice President Atterbury Condemns Labor Board—"The common sense and fairness of our employes and the American people in general will serve to overcome unrest among Pennsylvania railroad workers, when it is generally realized that the railroad company is looking out for the interests of its employes," is the opinion of W. W. Atterbury, vice president of the Pennsylvania railroad. In an address to employes of the road he criticized members of the Railroad Labor Board, who, he said, seem to "misconceive" their duties and are "trying to sow seeds of discord where peace and harmony already exist." —**Railway Review.**

Canadian View of Eight-Hour Day—"The eight-hour day will soon be universal in the iron and steel industry of this continent," says **Iron and Steel of Canada.** "Now that the point is settled once and for all, there will be a sigh of relief, even from those responsible for upholding that obvious anachronism the twelve-hour day. Judge Gary, representing the controlling factor in the iron and steel industry of the continent, executed a 'volte face' last month when he acceded to the united demand of the steel workers, of various church and other organizations, and public opinion. His announcement that the price of iron and steel products will be increased some 15% to cover the increased cost of manufacture will not frighten a public well accustomed of late years to such increases. It is only the comparative abundance of 'foreign labor' that has kept the twelve-hour day in force in the steel industry to this late date. Rightly or wrongly, the native workmen of this continent, will not, in general, work a twelve-hour shift week in and week out. Immigrants accustomed for generations back to the strenuous conditions of life in the hinterlands of Europe have been the mainstay of the steel mills, and their children, if not they themselves, after a few years have fallen into the easy ways of the remainder of American and Canadian industry, leaving room in the steel mills for a further lot of immigrants. Now that the long day is near to abolition, we shall hear less from captains of the steel industry about unrestricted European immigration; more native workmen will at once become available with the advent of the eight-hour day."

Wage Tendencies—"The rapid advances made in wages in the iron and steel industry during the third quarter of last year now bid fair to be repeated during the third quarter of the present year, if the trend of average hourly and weekly earnings to May 1, 1923, is to be taken as a criterion," says **The Blast Furnace and Steel Plant.** "At that time, according to the authoritative data compiled by the National Industrial Conference Board, the six-month period where these earnings remained near stationary had ended, and general advances, both hourly and weekly, were registered in both classes of labor—skilled and unskilled. Blast furnaces and rolling mills taken as typical of the industry by the board in the compilation of its data numbered 17. They are distributed geographically so as to afford a fair indication of the state of the industry as a whole. At the beginning of the present year average hourly earnings of all wage earners were 53.8 cents, as against 42.9 cents the previous year. But by May, 1923, they had risen to 58.8 cents, over the three-month period, and the same general changes are notable in the case of average weekly earnings."

The Shorter Work Day.—"Introduction of the short turn in many plants has

made more definitely the elimination of the 12-hour day in the steel industry a direct and major market factor," says the **Iron Trade Review.** "Expectations of reduced and unsettled production, at least for the time being, and certainty of an increase in manufacturing costs attendant upon the inauguration of the new system, have been carefully weighed by both producers and consumers. The shorter work day in prospect has been a material influence recently in stabilizing the steel market. In practical and general effect it gives promise of proving an even stronger support to prices and buyers' confidence."

A New Steel Works Epoch.—In discussing the new eight-hour day that has gone into effect in the steel mills, the **Iron Age** says among other things: "Ultimately plant modernization to the highest degree is involved, and expenditures of money even beyond the prodigal scale that long has been forced on the industry by the march of processes and the modern economic trend. In scores of communities life must be adjusted to a new cycle, and the personnel of the industry will undergo important changes. If there is one thing that stands out more than any other, as the leaders in the industry take up their prodigious task, it is the spirit of the operating managers. Not only are these men making every effort to bring about the change, but they entertain no peradventure of failure. Improvement of plant facilities will have attention to a degree rarely known. The less fit plants naturally will go from high cost to higher, but cannot long remain so and be active. The need is not merely for mechanical handling to replace manual labor or for automatic contrivances where perhaps none now exist. More than ever under the new regime operating heads must have the make-up that can deal successfully with the human factor."

Evidence of Swedish Labor Unrest—"The labor unrest which has obtained in Sweden since the beginning of the year is reflected in the greatly reduced output of the iron industry, Assistant Trade Commissioner H. Sorenson reports to the Department of Commerce," says the **American Machinist.** "The entire pig iron production in Sweden for the first three months of 1923 amounted to only 37,300 metric tons, as against 57,400 tons for the corresponding period of 1922, and 186,100 tons for 1914, according to the report just published by the Swedish Iron Works Association. As a result of the general lockout situation, there has been a considerable drop in the number of furnaces in operation. Of 132 blast furnaces only 18 were active; of 204 Lancashire furnaces but 29 were working; none of the 18 Bessemer furnaces produced; two of the 82 Martin furnaces were in blast, and three of the 27 electric steel furnaces were operating. Exports during the quarter have, however, improved, the total quantity of all kinds of iron and steel shipped during that period amounting to 48,600 tons, as compared with 37,400 tons for the first quarter of 1922. The increase was due solely to pig iron of which 22,600 tons were exported."

Negro Labor Problem—"Negro labor is a new problem on many northern railroads just now," says the **Railway Review.** "He is being tried out at maintenance of way work and in other fields for common labor. Yet we understand there is difficulty in holding him against the inducements offered by neighboring industries. Meanwhile the southern states are concerned at the proportions of the exodus from that part of the country. We hope an adjustment can be made that will give the north the benefit of some of the surplus labor of the south without seriously inconveniencing the latter. In any event we are not optimistic about negro labor as a substitute for immigration. The negro laborer is a low-wage man. At the low wages that formerly prevailed, his lack of energy, his slothfulness and his irregularity were not serious drawbacks. It was possible to employ large gangs and make up by mass what was lacking in the individual. But that day is past, and at present rates for labor there must be a return in individual efficiency. Some foremen may be able to get this out of the negro laborer. We haven't seen much of it ourselves."

Developing the Mechanic.— The Chicago, Rock Island and Pacific railroad has put into effect a plan whereby an employe entering the mechanical forces

will be given personal instruction concerning his duties and the work which he will do. Under the plan each new apprentice entering the shop forces is examined to determine his special qualifications for certain work, and is given instruction by a mechanic until he learns the general principles. This instruction is followed by technical training for special work to which he is finally assigned. Classes are now being conducted at Silvis, Ill., and similar classes are being organized at other points. The instruction is designed to develop a higher grade of mechanic and to remove the difficulty which now exists when an employee is placed in a position and left to work out his own salvation without proper instruction.—**Railway Age.**

FOREIGN

Electrical Industry and South American Trade — "The electrical industry has goods to sell, and to provide the necessary diversity of market that will protect itself against dull periods at home would like to establish a more substantial foreign trade," says the **Electrical World.** "Electrical engineers are ever seeking new fields for service. Operating syndicates are beginning to reach out into strange lands for new opportunities to build up power systems. In South America there is a great need for electrical skill, experience and materials, and already North Americans are, in fact, extensively engaged in electrical projects in process there. The development of that great continent will be accelerated by the electrification of railways and the construction of transmission lines. These projects are proceeding as fast as they can, but there is lack of money with which to go forward. There is more than passing interest, therefore, in a study of the customs record of the United States for the past few months as regards to its trade balance with the southern continent. The well-known shortage of coal in all settled regions of Latin America, and the abundance of hydro-electric energy in its mountains, make the idea of American investment in the hydro-electric industry of Central and South America especially appealing.

Portugal Needs Steel Products—American metallurgical companies have a fertile field in Portugal, according to a report to the Department of Commerce from Consul W. S. Hollis, Lisbon, for the introduction and sale of rails, beams, piping, tin plate, wire, etc., especially for the exploitation of the Wolfram mines, for which this country is noted. Tin plate is one of the biggest items of import through the port of Lisbon, a total of 90,541 boxes being imported from England during 1922. No tin plate was imported from America during that year, but it is believed that American manufacturers would do well to contest this trade during 1923.—**Iron Age.**

American Valve Grinders in Denmark—Valve grinders are used but little in Denmark, repair shops not being so far advanced in the use of modern equipment as in the United States, according to Commerce Reports, published by the Department of Commerce. Dealers are frank enough to admit, however, that the rapid increase in number of cars in use will make necessary the development of repair shops along more efficient lines, thereby offering a very good opportunity to introduce valve grinders for more general use. Those now in use are said to be largely of American manufacture and to be satisfactory. There should be a good market in this line, with little competition from foreign manufacturers.

Egyptian Market for American Steel Products—America's share in the iron and steel trade of Egypt has been built up since the war to such an extent that a permanent position in this line is assured, says G. E. Phoebus of the iron and steel division of the Department of Commerce. The consumption of iron and steel products by Egypt has been steadily increasing. All such products must be imported. The year 1922 witnessed an uphill struggle for British steel manufacturers in their efforts to maintain their influence with Egyptian purchasers, according to the British commercial agent for Egypt, who claims that competitors of the low currency countries held tremendous advantages. Belgium was the principal source of supply in 1922, far outstripping Germany, which came next. The United States was third from a standpoint of quantity, shipments from the United Kingdom weighing considerably less, although

valued higher. The fact that the United States has been able to maintain its volume of trade in this market at a time when Continental nations held unusual price advantages should be of great satisfaction to American steel exporters. —**American Machinist.**

Conditions in the German Machine Industry—The machine industry suffered severely in 1922 from the effects of Germany's economic disintegration, according to the annual report of the Verein Deutscher Maschinenbau-Anstalten, summarized in the Industrie und Handels-Zeitung of June 8th, and related in this country by **Commerce Reports,** published by the Department of Commerce. The association estimates that the present production of the industry, in weight, is only half that of the pre-war period. Among the greatest difficulties that have hampered operation are the condition of Germany's currency and the resulting capital shortage, the eight-hour day, excessive overtime wages, labor disputes, unsatisfactory supply of materials, injudicious taxation, and the import restrictions of foreign countries. The domestic demand, upon which the industry largely relied, declined during the year, and manufacturers were forced to depend to an increased degree on export sales. The export supplements required by the government embarrassed the industry considerably in its efforts to increase foreign sales, and pressure has been exerted by the central association with some success to have them reduced. Manufacturers are generally adopting the practice of invoicing export sales in foreign currency. It is estimated that 80% of the foreign sales of 1922 were made in this way.

English Market for Machinery—"The calamity howlers who take delight in comparing the current business situation with that of 1920, and predicting equally dire developments, overlook among other things the condition in Europe," says the **American Machinist.** "Three years ago such countries of Europe as were not scraping bottom financially were going downward rapidly. Today some few have turned the corner and are on the way up. How far they will get depends, of course, upon their ability to steer clear of the various imminent political disturbances that are now threatening. England, in particular, is staging a recovery that is the admiration of American business men who have recently returned from abroad. The English machinery builders have gone hungry for so long that there seems to be little opportunity for American makers of tools that compete on even terms as to quality, capacity and price with the English ones. One swallow does not make a Summer, nor does one machine tool sale indicate a boom market, but in this case the return of interest in a direction where nothing has been happening for months is at least encouraging."

IRON AND STEEL

Pipe Foundries and Pig Iron — The pig iron situation as related to the cast iron pipe industry is commented on by **Pipe Progress,** official publication of the American Cast Iron Pipe Company, as follows: "The big melters, such as the cast iron pipe foundries, are believed to have contracts for iron sufficient for three or four months' operations. The pipe foundries were forced into this position by their customers, as we have stated recently, when self-protection demanded that iron orders be placed as fast as pipe orders were booked. This has turned out to be a fortunate situation, as most of this iron was contracted for at lower prices than the peak market, and pipe prices therefore have not gone as high as the current iron market of the past several months would have seemed to warrant."

Another Use of Sheet Steel Promised. —The trench hat, the "old tin hat" that served in some measure to turn shrapnel hail on the war-swept fields of France, is coming into quite extensive use as a means of head protection against falls of rocks and ore in the mines of California, West Virginia, Oklahoma and many other states, according to R. V. Ageton, metal-mining engineer of the Bureau of Mines, Department of the Interior. The hats are being used in shaft sinking and in raising operations and around and in hoisting shafts, states Mr. Ageton. The "trench shoe" and similar heavy soles are also being utilized by miners as a medium of foot protection.—**Iron Age.**

Steel Industry's Most Important Needs—George M. Verity, president of the American Rolling Mill Company, writing on this subject for the **Iron Trade Review**, says among other things: "The iron and steel industry has reached such proportions that it cannot escape its larger responsibilities to the community at large. In spite of all its multitudinous worries and obligations, it must, along with every other great industry or undertaking, assume this additional responsibility if it is to secure and maintain that degree of confidence and respect of the public that will insure its ultimate success. we can and should endeavor to create a great steel industry spirit, just as we are constantly working for plant spirit in our individual organizations; and in all things that affect the foundations of the industry itself, or the public good, we should think and act in a manner worthy of the great opportunities and responsibilities that are ours, and in a way that will command the public confidence."

Pacific Coast Steel Company Expansion.—Negotiations are under way which will result in due time in a very considerable expansion of the operations of the Pacific Coast Steel Company, San Francisco. The building of a modern blast furnace is included, and sites have been under consideration, the choice being between South San Francisco and Long Beach, Cal. The city council of Long Beach has agreed to improve the harbor there to meet the requirements of the steel company, in case that district is selected. A statement made at San Francisco by D. E. McLaughlin, vice president of the Pacific Coast Steel Company, indicated that several sites are in view for the new blast furnace, and that the new construction proposed by the company would ultimately require an outlay of more than $15,000,000.—**Iron Age.**

A Broader View Urged—"Great possibilities, far greater than appear on the surface, confront the International Foundrymen's convention to be held in Paris in September," says **The Foundry.** "Effort is to be made to adopt an international standard test bar—not to draw up any specification for physical or chemical properties of cast iron, but just to decide on the shape and size of a test bar which will be standard in all countries. The adoption of such a standard bar will not prevent any foundry from using the size test bar it wishes for its own information. Or any country may adopt and use the size bar which it deems best suited to its particular needs within its borders. All that a standard international test bar will mean is that the iron producing countries of the world agreed upon a standard common to all by which the strength of import and export of gray iron castings may be measured."

Chromium's Part in Industry—"Further testimony to the importance of chromium in industry is found in the work of the Bureau of Standards on the strength of steels at high temperatures," says the **Iron Age.** "In the second and concluding installment of an article giving the results of an investigation of this subject, on another page, the authors find that the most striking feature observed is the preponderance of steels containing chromium. At 550 deg. C. five of the six steels showing the highest limit of proportionality contain chromium; two also contain molybdenum, and additions of vanadium or uranium are each found in one case. As industrial processes, chemical and others, increase in scope and complexity, a demand is created for stronger metals at high temperatures. Chromium thus far has been the main reliance in meeting these conditions."

Committee Studies Pipe Specifications—"The American Gas Association has submitted for the approval of the American Engineering Standards committee three specifications for cast iron pipe and special castings," says **The Foundry.** "The specifications were developed in 1911 by the American Gas Institute, at which time the dimensions for the bell and spigot castings were adopted. In 1913 the association adopted the dimensions for flanged castings, and specifications governing the manufacture of all cast iron pipe and specials, which were derived from old standard adopted in 1905 by the American Gas Light Association. The specifications now under consideration are said to be in general use for underground pipes throughout the United States."

Carnegie Institute's Metallurgy Course—As a result of the definite and increasing demand of the metallurgical and allied industries for college men, the Carnegie Institute of Technology, in Pittsburgh, has recently established a group of new and special courses in metallurgy and allied subjects. The courses, some of which are for one year, have been prepared to appeal both to graduates of liberal arts and technical colleges. They will be given for the first time in the college year of 1923-1924. This new development at Carnegie Institute is another step in line with its policy to train its students to fit the practical demands of various industries. The iron and steel industry, with a capital investment of probably more than five billions of dollars, and with more than a million and a half workers employed in its various branches, apparently, has long suffered from the dearth of trained college men. It is impossible to compute the actual loss through waste that has been met by the industry in training the raw college men coming to it each year. Carnegie Tech and other institutions located close to the metallurgical centers such as Pittsburgh have been continually pressed for their graduates of metallurgy and allied subjects.—**American Machinist.**

COAL

Mr. Hammond Says No Coal Strike—That there will be no coal strike in the anthracite coal fields this Fall, that the price of anthracite to New England consumers will not be above the prices of the last two years, and that it will not be necessary for the President to call an extra session of Congress to deal with the situation, are the beliefs of John Hays Hammond, chairman of the United States Coal Commission, and of Thomas R. Marshall, a member of the commission. Both members pointed out that more than 70% of the anthracite was mined by so-called "company" mines and not 8% as had been asserted by Representative Treadway. "These company mines," Mr. Hammond said, "during the last two or three years, during times of great stringency, have been charging $8 or $8.50 at the mines, and we do not believe that they will charge more this year, except 15 or 20 cents per ton compensation levied as a tax by the state of Pennsylvania." Advices from Atlantic City, where operators were attempting to negotiate a new wage agreement when Mr. Hammond uttered these remarks, were not so optimistic about there being no strike as was Mr. Hammond.—**Power.**

Buy Your Coal Now—This is the heading of an editorial in **American Industries,** which says: "The time to buy your coal—and get it—is now. The tendency among coal buyers to put off purchasing next Winter's supply has as its basis a feeling that coal will come down through the efforts of the United States Coal Commission. But the suggestion of the commission cannot be acted upon by Congress before December, and any relief this year from that quarter is out of the question. This makes it imperative, according to F. R. Wadleigh, Federal fuel distributor, that Winter stocks for industrial or commercial use should be stored by September at the latest. Aside from the question of possible trouble in the coal industry, the ability of the railroads to handle transportation of coal, if it is concentrated in the Fall months, is seriously questioned by many observers."

MISCELLANEOUS

Increasing the Capacity of the Existing Plant—"A railway is to be commended when it increases its capacity for handling traffic by adding to its facilities" says the **Railway Age.** "It is still more to be commended when it achieves this result by the more intensive use of tracks and equipment already available, for this conserves funds which it would otherwise be necessary to expend and restricts the increase in the amount on which a return must be earned. The roads have spent relatively large sums in recent months for additions to their fixed properties, although the increase has been smaller than in many previous years, measured in terms of the facilities provided. Greater expenditures have been made for cars and locomotives, although these have in large measure gone to make good the retirement of the last two or three years. As a whole, therefore, the railroads have a plant only slightly larger than that of 1918. With this plant they have handled a traffic heavier than in any previous period in history. During seven of the last nine weeks more than

1,000,000 cars have been loaded with revenue freight, and during two of these weeks more cars were loaded than in any previous weeks in history. During the week ended July 21st a new record for one week was established, when 1,028,927 cars were loaded with revenue freight, while on the final day of that week the number of loaded and empty cars handled exceeded that of any previous day on record by over 5,000."

Electric Melting of Brass Urged—Under the stimulus exerted by the great war the electric melting of brass, both in large and in small quantities, has been brought to a high degree of efficiency. Yet thousands of small fuel-heated brass foundries are still operating throughout the country. To convert them to modern methods will necessitate much missionary and educational work on the part of power-sales solicitors, but the results will be well worth the effort. The advantages of electric melting of brass, as outlined in a recently issued statement by the United States Bureau of Mines, should be of considerable assistance to the advocates of "doing it electrically"—this statement coming as it does from a competent and impartial organization. With proper safeguards no hesitancy need be felt regarding the desirability of the load; moreover it is not objectional from the point of view of other consumers of electrical energy. —**Electrical World.**

Automobile Industry and Economic Marvel.—"The automobile industry continues to run true to form as the economic marvel of the age," says the **Iron Trade Review.** "Despite all manner of dire predictions, the first signs of any serious reaction from this year's great activity have yet to appear. In July the preliminary estimate of output of passenger cars and trucks indicate a total of 318,000. That is only 15% behind the June production and 18% below the greatest monthly record for all time in May. With the exception of the four immediately preceding months, more cars were made in July than any month in any previous year. The gain over July, 1922, was 29%. At the present time the industry is averaging about 80% of capacity operations. Some factories are down to 50%, while one or two have actually maintained or increased their schedules. Meanwhile reports from automobile centers fail to indicate any forthcoming sweeping shutdowns. All this is remarkable and significant. It utterly refutes those who have been making much ado about this Summer's dullness. The country is prosperous. It could not be otherwise and continue to absorb automobiles at an annual rate of over 400,000."

Texas Utility Receives Mention in School Textbook—"Reference to a public utility in a school textbook is unusual, but has occurred in a recent geography of Texas, written for use in the schools of that state," says the **Electrical World.** "The book is profusely illustrated, showing the industries, natural features and views of many of the principal towns. Credit is given for the use of many of the photos to individuals or organizations co-operating in the gathering of the illustration material. An even dozen of the photos relating to cities or industries, and in three cases to the utility industries of the state, are credited to the Texas Power and Light Company. Such credit is illustrative of some of the things involved in community work and building that at first glance appear remote so far as utility problems are affected, but help to tie the utility definitely into matters of common community interest."

Motor Cars for Australia—America's leading export market for motor cars is Australia, says Trade Commissioner J. W. Sanger in a report to the Department of Commerce. It imported from the United States in 1922 $23,000,000 worth of automobiles and parts, and is now buying about 60% of its motor chassis, bodies, equipment and spare parts from the United States. Aside from this, its imports of chassis from the Canadian factories of American manufacturers represent approximately 20% of its total purchases. Roughly speaking, one out of every three makes of American cars are represented in Australia, in one way or another. American cars usually rank in popularity in about the same order as they do in the United States. The leading eight American cars in this market represent upward of 40% of Australia's total purchases of motor vehicles of all kinds from all sources.—**American Machinist.**

COMPARISON OF METAL PRICES

	Range for 1921.		Range for 1922.		Range for 1923.		Closing Aug. 31,
Pig Iron.	High.	Low.	High.	Low.	High.	Low.	1923.
Bessemer, valley	32.00	20.00	33.50	19.00	31.00	26.50	26.50
Basic, valley	30.00	18.00	30.50	17.75	31.00	25.00	25.00
No. 2 foundry, valley ...	33.00	19.50	35.50	18.75	31.00	25.00	25.00
No. 2X fdy. Philadelphia	33.79	19.84	34.76	21.34	33.16	25.25	25.25
No. 2 foundry, Cleveland	33.56	20.56	35.50	19.56	32.50	26.77	26.77
No. 2X foundry, Buffalo .	31.25	19.00	34.25	19.50	30.25	24.75	24.75
No. 2 foundry, Chicago ..	33.00	18.00	33.00	18.50	32.61	27.61	27.61
No. 2 Southern, Birm. ...	34.00	16.50	28.00	15.00	27.00	23.00	23.50
Scrap Iron and Steel.							
Melting Steel, Pittsburgh	17.00	12.75	22.00	14.00	27.00	17.00	18.25
Heavy steel scrap, Phila.	16.00	10.00	19.00	11.00	26.50	15.50	17.25
Heavy melting steel, Chi.	16.50	10.00	19.00	11.00	24.50	15.50	16.25
No. 1 cast, Pittsburgh ..	22.50	15.00	25.00	16.00	27.50	20.50	21.75
Iron and Steel Products.							
Bessemer rails, mill	45.00	40.00	43.00	40.00	43.00	43.00	43.00
Iron bars, Pittsburgh	3.06	1.85	2.55	1.80	2.82	2.35	2.70
Iron bars, Philadelphia ..	3.85	1.80	2.58	1.70	2.82	2.32	2.72
Steel bars, Pittsburgh ..	2.35	1.50	2.25	1.35	2.40	2.00	2.40
Tank plate, Pittsburgh ..	2.65	1.50	2.50	1.35	2.50	2.00	2.50
Structural shapes, Pitts..	2.45	1.50	2.25	1.35	2.50	2.00	2.50
Grooved steel skelp, Pitts.	2.45	1.50	2.10	1.40	2.50	2.00	2.40
Black sheets, Pittsburgh.	4.35	2.75	3.75	3.00	4.00	3.35	3.85
Galvanized sheets, Pittsb.	5.70	3.75	4.75	4.00	5.50	4.35	5.00
Tin plate, Pittsburgh ...	7.00	4.75	4.75	4.60	6.00	4.75	5.50
Wire nails, Pittsburgh ..	3.25	2.50	2.70	2.40	3.00	2.70	3.00
Steel pipe, Pittsburgh...	57½%	71%	66%	71%	62%	66%	62%
Connellsville Coke at Ovens.							
Prompt furnace	5.00	2.75	15.00	3.75	9.00	4.00	5.00
Prompt foundry	7.00	3.75	16.00	3.75	9.50	5.25	6.25
Metals — New York.							
Straits tin	65.00	32.50	39.00	25.50	51.50	37.50	40.62½
Lake Copper	20.50	13.75	14.00	12.00	17.50	14.00	14.00
Electrolytic copper	19.50	12.75	13.75	11.50	17.25	13.60	13.65
Casting copper	19.25	12.75	13.00	11.25	16.87½	13.50	13.50
Sheet copper	29.50	22.50	21.50	19.50	25.50	19.25	22.25
Lead (A. S. & R. Co. price)	9.25	4.75	5.00	4.00	8.25	6.00	6.75
Zinc (spelter)	9.85	6.00	6.10	4.25	8.35	6.00	6.77½
Chinese and Japanese Ant.	11.62½	5.20	6.00	4.45	9.00	6.25	7.50
Aluminum, 98-99%	32.75	22.00	26.00	17.00	26.50	22.50	25.50
Silver	137	59¼	73⅝	52⅝	73¾	62.25	62.75
St. Louis.							
Lead *	9.15	4.45	5.05	3.90	8.50	5.67½	6.67½
Zinc (spelter)	9.50	5.50	5.60	4.12½	8.00	5.75	6.42½
Sheet zinc (f.o.b. smelter)	12.50	11.50	11.50	8.50	10.00	8.90	9.25
London.	£	£	£	£	£	£	£
Standard tin prompts	415½	198	210½	148	232	176⅛	191¾
Standard copper, prompts	122	70½	75½	65¼	76¼	62⅝	62⅝
Lead	52⅜	21½	26	16½	29⅝	23¾	24¾
Zinc (spelter)	63	22½	28¼	23½	39⅛	27⅝	33½

* Outside market.

COMPARISON OF SECURITY PRICES

Iron and Industrial Stocks.	Range. 1920. High.	Low.	Range. 1921. High.	Low.	Range. 1922. High.	Low.	Range. 1923. High.	Low.	Closing Aug. 31, 1923.
Allis-Chalmers.....	53⅞	26½	39¾	28¼	59¾	37¾	51¼	37¾	44
American Can	61¾	21¾	35½	23½	76½	32⅛	106	73½	98¾
American Car & Fdy...	147⅜	111	151	115¼	201	141	189	148¼	167
American Loco. (new)	....	....	....	....	....	....	75¼	64¾	73¾
American Smelt. & Rfg.	72	29¼	47¼	29⅝	67½	43⅝	69½	53	60½
Am. Steel Found., new.	50	26	35	18	46⅛	30¾	40⅞	31⅜	36¾
Anaconda Copper	66½	30	50¾	31¾	57	45	53½	38	40
Baldwin Loco	148½	78	100⅜	62¼	142¾	92¾	144¼	110½	124⅞
Bethlehem Steel.....	....	....	....	....	79	51	70	41¾	53⅞
Butte & Superior	29¼	8	22⅛	10	35¼	20⅜	37⅜	13½	16
Cerro de Pasco	61⅜	24¼	36½	23	46⅜	32⅞	50½	36⅝	39¾
Chile Copper	21¼	7¾	16⅞	9	29¼	15⅛	30⅝	24⅛	26¾
Chino Copper	41⅝	16⅜	29½	19½	33⅜	22¼	31⅞	14¾	16¾
Colo. Fuel & Iron	44¼	22	32¾	22	37⅜	24	35⅜	25	30¾
Crucible Steel	278½	70	107½	49	98⅜	52¾	84½	57⅞	67
General Electric	172	116½	143¾	109½	190	136	190	170½	178
General Motors	42	10¾	16¼	9⅜	15¼	8⅛	17½	12¾	15½
Granby Con.	55½	15	34½	15	35	22	33	15¾	20
Great Northern Ore ...	41⅝	24⅞	35⅜	25⅝	45⅝	28⅞	36	25	31
Gulf States Steel	84⅞	25	50⅞	25	94⅞	44⅞	104⅝	65¼	87⅛
Inspiration Copper	61⅞	28	42¼	29⅝	45	31	43¾	27	28
International Harvester	142½	88	100½	67⅝	115⅞	79⅜	98½	71	75⅞
International Nickel...	26¾	11⅛	17	11½	19¾	11¼	16¼	11⅛	12⅞
Kennecott Copper	33½	14⅝	27⅞	16	39⅝	25½	45	32	34½
Midvale Steel	52¾	29½	33½	22	45½	26	33⅜	21½	28¼
National Enam. & Stg..	89½	43¾	66	26	68½	30¾	73	55½	65½
National Lead	93¼	63½	87	67¾	129¼	85	136¾	108	130
N. Y. Air Brake.....	....	....	....	....	41⅝	24½	41	26⅝	35
Pressed Steel Car	113⅞	72½	96	48	95¼	63	81½	49	56⅜
Railway Steel Spring ..	106½	73	99½	67	126¼	94	123	100	107½
Ray Consolidated	22¾	10	15⅞	11	19	12⅛	17¼	10	10¼
Republic Iron & Steel.	124¾	55¼	73½	41	78½	43½	66¼	40⅛	48½
Sloss-Sheffield	82¼	43	56	32⅛	54½	34½	60	39¼	48½
U. S. Cast Iron Pipe ...	25½	10½	19	11½	39	16⅛	34½	20	29½
U. S. Smelt., Rfg. & M.	76	29½	39⅜	26	45¾	32¾	43⅜	20	26½
U. S. Steel Corporation	109	76¼	86½	70	111½	82	109⅝	85½	93
U. S. Steel Corp. pfd....	115¾	104⅛	115	105	123	114¼	123½	116⅛	117
Utah Copper	80¾	44⅛	63⅜	41⅛	71½	59	76½	56	60⅜
Westinghouse Electric.	55⅛	40	52¼	38⅞	65⅞	49⅛	67⅛	52½	5...

BUSINESS TRENDS

COMMODITY PRICES TURN UPWARD

Bradstreet's September 1st Index Number totals $12.9143, marking a gain of seven-tenths of 1% over that of Aug. 1st, and the first increase noted since March 1st of this year. The September number, however, still marks a decline of 7.3% from March, and is the lowest, except that of August 1st, recorded since October 1st last year. Compared with September 1st a year ago, the Index Number is 6.9% higher, and the rise over June 1, 1921, the low point since the deflation of 1920, is 21.6%. Compared with February 1, 1920, the price level is 38.1% lower, while the rise from August 1, 1914, is 48.2%.

A monthly range of index numbers of the past four years is given below:

	1923.	1922.	1921.	1920.
Jan. ..	13.7011	11.3725	12.6631	20.3638
Feb. ..	13.7236	11.4190	12.3689	*20.8690
Mar. .	13.9332	11.6001	11.8650	20.7950
April .	13.9304	11.5317	11.3749	20.7124
May ..	13.6665	11.7044	10.8208	20.7341
June .	13.0895	11.9039	10.6169	19.8752
July ..	12.8201	12.1069	10.7284	19.3528
Aug. ..	12,9143	12.0688	11.0576	18.8273
Sept. .	.....	12.0793	11.0868	17.9746
Oct. ..	.....	12.5039	11.1879	16.9094
Nov. .	.....	13.3482	11.3514	15.6750
Dec. ..	.....	13.7835	11.3127	13.6263

* High record. — The Index Number compiled by Prof. Irving Fisher of Yale University for the month of August averaged 154% of the pre-war level and the dollar's purchasing power was 65 pre-war cents.

DECREASE IN AUGUST FAILURES.

With the single exception of July, commercial failures in the United States for August were the smallest in number for any month in over two years, while the liablities were less than those of all previous months, aside from last June, since November, 1920. As reported to R. G. Dun & Co., the August defaults numbered 1,319 and involved an indebtedness of $34,334,722, comparing with 1,231 insolvencies for $35,721,188 in July. It thus appears that the August failures, although about 7% larger in number than those of July, show a decrease of approximately 4% in the liabilities. In August, 1922, there were 1,714 defaults for $40,279,718.

Of the August insolvencies, 385, with an indebtedness of $15,987,913, occurred in manufacturing occupations, 888 for $13,124,649 among traders and 46 for $5,222,160 in the division embracing agents, brokers and other similar concerns. The manufacturing failures represent about 30% of the total number for the month, whereas the manufacturing liabilities are equivalent to approximately 48% of the aggregate amount.

Including all classes of defaults for $100,000 or more in each case for August number fifty-six, involving $19,041,068 altogether. These insolvencies of unusual size comprise less than 4% of all failures for August, but represent more than 50% of the aggregate indebtedness.

INCORPORATIONS DECLINE.

During August 251 new corporations with an authorized capitalization of $100,000 or more were organized under the laws of the different States, making a total of $335,462,000. This sum is the smallest for many months and represents a decrease of $311,143,000 compared with August, 1922. Many plants for new enterprises are known to have been delayed and curtailed for various reasons, including international political uncertainties, the recent course of the securities markets and lessened business activity earlier in the year. Curtailment in the organization of oil companies may be ascribed to the unsettlement of the petroleum market.

Since January 1st 6,199 new corporations with an aggregate capitalization of $5,398,427,120 have been formed. During the first eight months of 1922 6,504 charters were filed with $5,475,911,400 capitalization. In the corresponding months of 1921 6,691 corporations with $5,399,120,800 authorized capital were formed.

The following are the comparative figures as compiled by **The Journal of Commerce** of companies incorporated in the States with authorized capital of $100,000 or over.

	1923	1922
January	$909,693,800	$ 843,652,900
February ...	700,708,300	591,404,300
March	500,819,000	731,866,000
April	1,006,258,300	792,372,000
May	817,229,500	938,195,000
June	1,403,336,220	297,557,000
July	724,920,000	634,259,200
August	335,462,000	646,605,000
September ..	.....	650,044,000
October	.....	651,577,390
November ..	.....	808,719,600
December ...	.....	813,901,000
Total	.....	8,400,153,390

BUSINESS TRENDS

BANK CLEARINGS AT LOW EBB

August bank clearings usually reflect mid-summer quiet in trade and industry, and this year was no exception to the rule. Indeed, the total for the eighth month this year was not only smaller than that for July, but also smaller than was that for February, and it is neecssary to go back to February of last year to find a lighter monthly total. It will be recalled that while August had 27 business days, August 3rd, the day following President Harding's death August 8th, the day of the state funeral at Washington, and August 10th, the day of interment at Marion, saw commercial, financial and industrial operations greatly curtailed, so that there were really only 24 full business days in most parts of the country, or about the same number as in February.

The total clearings at 117 cities for August according to Bradstreet's were $28,673,000,000, a decrease of 8.4% from July and of 3.9% from August a year ago. The decrease from a year ago was accounted for entirely by the decline in New York clearings, which aggregated $14,778,000,000 in August, a decrease of 11.2% from July and of 12.% from August a year ago. Clearings at 116 cities in August totaled $13,-895,000,000, a decrease of 5.3% from July, but a gain of 7.4% over August last year.

Bank clearings at 117 cities for eight months total $263,612,000,000, a gain of 7.6% over 1922 and of 17% over 1921, and a decrease of only 9.3% from the high-water-mark year 1920. New York City bank clearings for eight months show a decrease of seven-tenths of 1% from a year ago, but eight month's clearings at 116 other cities show a gain of 19.7%.

"A MAJOR BUSINESS DEPRESSION."

"Current reports as to business rather belie the theories that are going about among a certain group of statisticians that the country is in for a "major business depression" within the next three to six months," says the New York Journal of Commerce. "Practically all of the statisticians admit that there will be a fair volume of autumn business, but when that is over, some are of the opinion that things are apt to go pretty much to the bow-wows.

"To those who are following the situation closely, however, by methods other than graphic, the view seems to be gaining ground that, barring unforseen foreign developments, business has a fairly satisfactory outlook. True, there are 'weak' spots here and there, even within the domestic field, but as these always exist, there seems no reason to believe that they need to be taken especially seriously. Advance forecasts are pleasant things to play with, but it is always dangerous to place too much confidence in them. So far, business has traveled along at a very satisfactory rate of activity since the serious post-war depression. But a conservative attitude toward large future commitments has prevailed. This in itself is an important protection against major business depression."

HOW WE GROW

Julius H. Barnes, president of the Chamber of Commerce of the United States, in an address August 22 before the National Association of Insurance Agents, cited ten production records that have been established in industry during the last few months, as follows:

The largest pig iron producton; the largest cotton consumpton; the largest steel ingot production; the largest crude oil production; the largest automobile and truck production; the largest residential construction; the largest production of locomotives; the largest volume of mail-order sales; the largest volume of retail sales; the largest volume of railroad car loadings.

Mr. Barnes also made several comparisons of changes that have taken place in the United States since the pre-war year of 1913. The more important of these comparisons were:"The population of the United States has increased 14,000,000 people, with their enlarged requirements. The annual national income has increased from $34,000,000,-000 to $50,000,000,000. The aggregate savings deposits increased from $6,000,-000,000 to $14,000,000,000. The deposits in national banks have increased from $6,000,000,000 to $17,000,000,000."

IRON AND STEEL MARKET

What occurred in August in the iron and steel market and in the iron and steel trade generally is of much less importance in itself than as furnishing the background of the set of conditions that face men as September opens.

That these conditions face men and that men must face these conditions is the basic point in a consideration of prospects. Our meaning is that July and August have been a sort of temporizing period but now we must "get down to brass tacks" or we may go blindly on to things we did not bring ourselves to expect.

As to the statement that what occurred in August is of less intrinsic importance than the bearing it has upon September developments will be illustrated by saying that week by week during August statements were made by word of mouth and in market reports and reviews of "improving sentiment in the market" and of "buyers having increased confidence." This if true would be interesting but the importance and practically useful thing would be for this change in opinion to bear fruit in increased buying of steel. The object of industry is to make money, and money is not made by sentiment or kind words from customers. What industry needs is orders.

If the improvement in opinion in August brings heavier buying in September, well and good. One cannot wait, for throughout July and August the expectation has been expressed that the market was seasonally dull and September would bring heavier buying. There is room for argument whether there are really and truly as a result of physical conditions, seasons in steel, but the practical thing is that men think there are seasons and it is what men think that causes action. If the improvement in opinion in August is not followed by increased buying in September then the steel market will be worse off than if opinion had not im-

COMPOSITE PIG IRON.

Computation for September 1, 1923.

One ton Bessemer, valley	$26.50
Two tons basic, valley (25.00)	50.00
One ton No. 2 fdy., valley	25.00
One ton No. 2X fdy., Philadelphia	25.25
One ton No. 2X fdy., Buffalo	24.75
One ton No. 2 fdy., Cleveland	26.77
One ton No. 2 fdy., Chicago	27.61
Two tons No. 2 southern foundry, Cincinnati (27.55)	55.10
Total, ten tons	260.98
One ton	**26.098**

Averaged from daily quotations.

	1923.	1922.	1921.	1920.	1919.	1918.
Jan.	27.31	19.71	32.62	39.84	32.39	34.19
Feb.	27.98	19.31	29.95	42.72	32.39	34.19
Mar.	30.36	19.26	27.35	43.05	30.47	34.14
Apr.	31.44	20.77	25.80	43.62	28.05	33.88
May	30.84	23.91	24.67	44.43	27.74	33.88
June	29.11	24.29	23.08	44.80	27.15	33.91
July	26.98	24.54	21.57	45.60	27.66	34.04
Aug.	26.10	27.74	20.29	47.41	27.99	34.04
Sept.	....	32.48	20.99	48.98	28.26	34.31
Oct.	....	31.82	21.15	47.07	28.65	35.36
Nov.	....	29.47	20.92	41.80	31.48	35.39
Dec.	....	26.73	20.42	36.31	36.73	35.23
Year	....	25.00	24.05	43.80	29.91	34.38

Annual Averages.

1917	39.99	1914	13.52
1916	20.31	1913	15.42
1915	14.15	1912	14.82

COMPOSITE STEEL.

Computation for September 1, 1923.

Pounds	Group	Av. Price	Extension
2½	Bars	2.40	6.000
1½	Plates	2.50	3.750
1½	Shapes	2.50	3.750
1½	Pipe (1-3)	3.80	5.700
1½	Wire nails	3.00	4.500
1	Sheets (28 ga.)	2.85	3.850
½	Tin plate	5.50	2.750
Total, ten pounds			30.300
One pound			**3.03**

Averaged from daily quotations.

	1923.	1922.	1921.	1920.	1919.	1918.
Jan.	2.59	2.16	3.25	3.35	3.58	3.80
Feb.	2.72	2.14	3.10	3.58	3.58	3.80
Mar.	2.83	2.09	2.94	3.78	3.47	3.80
Apr.	2.99	2.16	2.93	3.77	3.25	3.80
May	3.03	2 18	2.93	3.71	3.25	3.80
June	3.03	2.22	2.83	3.67	3.25	3.80
July	3.03	2.23	2.63	3.70	3.25	3.80
Aug.	3.03	2.36	2.48	3.80	3.25	3.80
Sept.	....	2.51	2.37	3.80	3.22	3.80
Oct.	....	2.57	2.31	3.67	3.23	3.80
Nov.	....	2.57	2.28	3.50	3.25	3.80
Dec.	....	2.57	2.23	3.28	3.25	3.67
Av.	....	2.31	2.69	3.63	3.32	3.79

Annual Averages.

1917	4.46	1915	1.63	1913	1.72	
1916	2.80	1914	1.52	1912	1.62	

proved, because there will be disappointment.

The buyers of steel make no question but that what they think, the way they feel, has a great deal to do with the state of the steel market. The sellers of steel not only do not seek to deny this but instead often speak of sentiment among steel buyers being an important factor in making the steel market. All, in fact, are agreed that while it is important for the channels of steel consumption to be open or free, it is indispensable that buyers of steel be sanguine and have confidence. There are always some stocks of steel and if buyers have not confidence they turn in to reduce, even to eliminate, those stocks. The operation is facilitated and made relatively safe by the quickness with which mills at such a time are able to make shipment on new orders.

Eventually the time always comes when buyers of steel start to reduce stocks, and then the production and shipment of steel runs below the rate of actual ultimate consumption. In a nutshell, the main thing one wants to know when attempting to gauge the future of the steel market is the time

PIG IRON PRICES.

(Averaged from daily quotations; at Philadelphia, Buffalo, Cleveland and Chicago, prices are delivered.)

	Bessemer, Valley	Basic Valley	No. 2 fdy. Valley	Basic. Phila.	No. 2X Phila.	No. 2X foundry Buffalo.	No. 2 fdy. Cleveland.	No. 2 fdy. Chicago.	No. 2 fdy. Birmingham.	Ferro-manganese.*	Comp. Pig Iron.
Feb. 1921	29.63	27.71	28.29	29.28	30.73	30.17	30.15	30.87	27.50	90.00	29.95
Mar. ...	26.70	24.41	25.89	26.54	28.03	29.01	27.70	27.07	25.52	90.00	27.35
April ..	25.00	23.00	24.81	25.47	26.38	27.17	26.77	25.32	23.77	90.00	25.80
May ...	24.32	22.15	23.60	23.70	24.96	25.40	25.56	23.70	21.80	85.00	24.47
June ...	22.88	21.20	22.42	23.54	24.21	22.45	24.17	22.08	20.48	75.00	23.08
July	21.34	19.52	20.40	22.40	23.00	20.68	21.66	19.98	20.18	70.00	21.57
Aug. ...	20.00	18.22	19.59	19.70	20.42	19.48	20.56	19.64	18.70	68.50	20.29
Sept. ..	20.00	19.00	20.86	19.14	20.84	20.08	20.56	22.18	19.06	66.00	20.99
Oct. ...	20.00	19.24	21.00	20.50	21.40	20.50	20.56	22.35	19.00	60.00	21.15
Nov. ...	20.00	19.00	20.78	20.50	21.93	19.82	20.56	21.79	18.56	60.00	20.92
Dec. ...	20.00	19.00	20.00	20.45	21.88	19.38	20.56	20.53	17.31	59.00	20.42
Jan. 1922	19.62	18.19	19.38	20.25	21.34	19.75	19.92	19.84	15.96	58.00	19.71
Feb. ...	19.40	18.00	18.92	19.84	21.34	19.06	19.56	19.18	15.33	65.75	19.31
Mar. ...	19.02	17.89	18.87	19.84	20.73	18.56	19.56	20.48	15.31	62.50†	19.26
April ..	20.88	19.98	20.74	20.75	22.90	20.89	20.76	21.06	15.74	68.00†	20.77
May ...	25.08	24.62	24.00	23.37	25.51	23.44	24.56	23.05	17.63	70.00†	23.91
June ..	25.00	25.00	24.00	25.00	26.62	22.96	24.56	23.83	18.44	68.50†	24.29
July ...	25.00	24.32	24.20	25.54	28.00	25.05	24.56	24.73	18.56	69.00†	24.54
Aug. ...	27.74	26.17	29.04	29.00	31.69	30.42	29.16	28.17	20.37	70.00†	27.74
Sept. ..	33.76	30.08	35.02	30.90	34.76	34.13	35.50	32.53	25.40	77.00†	32.48
Oct. ...	33.23	30.23	31.63	29.50	32.69	31.60	34.27	32.15	27.04	100.00†	31.82
Nov. ...	31.70	28.28	28.78	28.14	30.78	28.41	31.34	30.65	24.12	100.00‡	29.46
Dec. ...	27.78	24.96	25.92	27.50	28.53	26.19	27.38	28.09	22.70	100.00‡	26.73
Jan. 1923	27.50	25.00	27.00	27.90	28.72	27.44	27.83	29.09	23.23	103.00‡	27.31
Feb. ...	27.75	25.67	27.21	28.25	29.79	28.52	28.42	30.13	24.29	106.00‡	27.98
Mar. ...	29.94	29.44	30.00	29.17	31.86	29.40	31.31	31.46	26.33	117.00‡	30.26
April ..	31.00	31.00	31.00	30.50	33.01	30.17	32.50	32.61	27.00	116.50‡	31.44
May ...	30.23	29.33	30.69	30.85	32.64	29.29	32.13	32.61	27.00	123.00‡	30.84
June ..	28.73	26.85	28.04	28.20	30.47	28.87	29.85	32.11	25.63	125.00‡	29.11
July ...	26.82	25.11	25.70	26.45	27.80	25.11	27.32	28.71	25.00	120.00‡	26.98
Aug. ...	26.50	25.00	25.00	25.00	25.50	24.75	26.77	27.65	23.31	117.50‡	26.10
Yearly averages.											
1913 ...	16.26	14.77	14.87	16.23	16.56	14.87	15.37	16.39	11.73	57.87	15.42
1914 ...	13.99	12.89	13.02	14.02	14.59	12.84	13.76	14.15	10.25	55.80	13.52
1915 ...	14.90	13.78	13.81	14.88	15.25	13.98	14.31	14.46	10.59	92.21	14.15
1916 ...	23.05	19.87	20.16	20.96	21.20	20.63	20.40	20.67	15.84	164.12	20.31
1917 ...	42.67	39.10	39.89	39.37	40.80	40.41	40.61	41.06	35.11	309.17	39.99
1918 ...	35.46	32.50	33.27	34.10	35.56	33.97	33.62	33.77	33.20	245.83	34.38
1919 ...	29.62	27.49	28.63	30.02	32.75	30.53	29.14	29.37	28.34	132.16	29.91
1920 ...	42.85	42.05	43.25	43.26	46.74	45.23	43.66	43.25	40.43	172.33	43.80
1921 ...	23.49	21.87	23.30	23.56	24.74	23.78	24.34	24.05	21.92	76.54	24.05
1922 ...	25.68	23.98	25.04	24.88	27.07	25.04	25.93	25.31	19.72	75.33	25.00

* Delivered. † Seaboard. ‡ F. o. b. furnace.

when this point is going to be reached.

To make a long story short, it seems very plain now that this point is going to be reached by the end of September unless there is a very decided increase in steel buying. The increase has been predicted and expected and there will be disappointment and corresponding change in sentiment if it does not occur.

August Trends

Buying of finished steel products, on the whole, seem to have been lighter in August than in July, and probably it was lighter in the second half of August than in the first half. The volume of steel buying has been misjudged in some quarters by its being reasoned that mills that had lean order books, say July 1st, have been able to maintain operations quite well, hence there must have been much buying. This does not prove that there was much buying from all mills. The buying was for early deliveries and the orders went to mills that could make early deliveries. Mills that were well filled did not get much of this new business. The total of all buying was not large relative to the total capacity or the total shipments. Mills that did not need new business in July and August were tending to get into that position.

The trend in production was downward in August, and more so than in July. Comparing outputs with allowance for the number working days there was a small decrease in pig iron and steel from June to July and a larger decrease from July to August.

PIG IRON

Our comosite pig iron declined as follows during the months named:

May	$1.47
June	1.85
July	1.45
August	.50

The declines in August were confined to southern, eastern Pennsylvania and Chicago foundry iron, there being no declines at Buffalo, Cleveland or in the valleys.

The figures would suggest that declines in pig iron are practically ended, unless fresh developments occur. There are distinct possibilities of advances. The anthracite suspension may last long enough to put coke up, and that would probably put pig iron up, at least in some districts, and apart from that influence there might be advances in pig iron, as a natural reaction or rebound, for the poor buying of late has certainly shaken the market out, and in fact has put out a good many furnaces.

UNFINISHED STEEL AND IRON BARS.

Averaged from daily quotations.

1921—	Billets. Pitts.	Sheet Bars. Pitts.	Rods. Pitts.	—Iron bars, deliv.— Phila.	Pitts.	Ch'go.
Jan.	45.00	47.00	57.00	2.85	3.06	2.68
Feb.	42.00	42.00	57.00	2.70	2.70	2.62
Mar.	39.00	39.00	47.00	2.56	2.60	2.60
April	37.00	38.50	47.50	2.35	2.45	2.45
May	37.00	39.00	48.00	2.35	2.35	2.38
June	35.00	36.00	48.00	2.20	2.25	2.25
July	32.00	33.00	43.00	2.07	2.20	1.94
Aug.	30.25	30.50	42.00	2.00	2.08	1.75
Sept.	30.00	30.00	40.50	1.97	2.00	1.75
Oct.	30.00	30.00	40.00	1.92	2.00	1.75
Nov.	29.00	30.00	40.00	1.90	1.97	1.70
Dec.	29.00	29.00	38.00	1.85	1.95	1.70
1922—						
Jan.	29.00	29.00	37.00	1.80	1.82	1.60
Feb.	28.50	29.00	36.00	1.75	1.78	1.60
Mar.	28.00	29.00	36.00	1.70	1.70	1.54
April	30.00	31.75	38.00	1.81	1.75	1.57
May	34.00	35.00	38.00	1.86	1.83	1.65
June	35.00	35.00	38.00	1.96	1.95	1.73
July	35.00	35.00	40.00	2.12	2.13	1.85
Aug.	37.00	37.00	43.00	2.16	2.15	1.95
Sept.	39.00	40.00	45.00	2.48	2.25	2.25
Oct.	39.50	39.50	45.00	2.43	2.40	2.50
Nov.	37.75	37.75	45.00	2.37	2.40	2.50
Dec.	36.50	36.50	45.00	2.32	2.35	2.50
1923—						
Jan.	37.50	37.50	48.50	2.36	2.37	2.45
Feb.	39.40	39.40	50.00	2.51	2.54	2.35
Mar.	44.00	44.00	50.00	2.70	2.70	2.50
April	46.30	45.60	50.00	2.82	2.80	2.60
May	45.00	45.00	50.00	2.82	2.80	2.60
June	43.50	43.50	51.00	2.80	2.75	2.60
July	42.50	42.50	51.00	2.69	2.70	2.60
Aug	42.50	42.50	51.00	2.72	2.70	2.60
Yearly averages						
1913.	25.56	26.35	28.39	1.51	1.59	1.45
1914.	20.08	20.84	25.50	1.20	1.27	1.07
1915.	23.14	23.46	28.28	1.37	1.32	1.24
1916.	45.02	45.10	57.58	2.57	2.59	2.31
1917.	71.15	75.87	80.23	4.06	4.09	3.78
1918.	47.30	50.80	57.00	3.71	3.50	3.50
1919.	40.52	43,77	53.11	2.94	2.80	2.69
1920.	57.79	65.21	70.00	4.35	4.13	3.65
1921.	34.60	35.33	45.67	2.23	2.30	2.13
1922.	34.10	34.54	40.50	2.06	2.04	1.94

WAGE SCALE AVERAGES

	Bar Iron.	Sheets.	Tin Plate
Jan.-Feb. ..	2.25	3.30	4.80
Mar.-April .	2.35	3.40	4.80
May-June ...	2.50	3.60	5.20

PIG IRON PRODUCTION

Output of pig iron in August—a month of 31 days—was approximately 3,435,300 tons. This includes anthracite and coke but not charcoal iron. The daily rate averaged 110,816 tons. On September 1st when 270 furnaces were in blast the indicated output, based upon capacity of the furnaces, was 106,590 tons daily.

In July—also a month of 31 days—total output was 3,678,344 tons, equivalent to a daily rate of 118,656 tons, there having been a slight revision in figures previously reported. On August 1st 297 blast furnaces were active, having an estimated capacity of 114,500 tons a day.

In August 33 furnaces were blown out and five were blown in, making a net decrease of 28 during the month. Out of 419 furnaces, therefore, on September 1st, 270 were active. In July there was a loss of 25 furnaces as compared with the preceding month.

Both the total production and the daily rate of output in August were the smallest of any month since February. Steel companies in August produced at the rate of 86,022 tons a day against 88,798 tons a day in July, whereas merchant furnaces in August produced at the rate of 24,794 tons a day, against a July output of 29,858 tons a day. Thus the steel companies in August produced at a smaller daily rate than at any time since

The following table shows the estimated annual rates of production of pig iron in each month during the last three years.

Estimated annual rates.

	1923	1922	1921
Jan.	38,275,000	19,300,000	28,750,000
Feb.	39,250,000	21,300,000	25,550,000
Mar.	41,300,000	24,000,000	19,000,000
April	43,400,000	25,250,000	14,600,000
May	45,800,000	27,250,000	14,450,000
June	44,850,000	28,900,000	13,000,000
July	43,550,000	28,500,000	10,200,000
Aug.	40,650,000	21,550,000	11,250,000
Sept.	.....	24,950,000	13,000,000
Oct.	.....	31,350,000	14,600,000
Nov.	.....	34,900,000	17,200,000
Dec.	.....	36,350,000	19,400,000

Yearly Totals

1922	27,219,904		
1921	16,688,126	1916	39,434,797
1920	36,925,987	1915	29,916,213
1919	31,015,364	1914	23,332,244
1918	39,054,644	1913	30,966,152
1917	38,621,216	1912	29,726,937

STEEL MAKING PIG IRON AVERAGES

Bessemer and basic pig iron averages compiled by Messrs. W. P. Snyder & Company from sales in the valley market of 1,000 tons and over.

	Bessemer.			Basic.		
	1923.	1922.	1921.	1923.	1922.	1921.
Jan.	27.50	19.50	32.00	25.58	18.19	30.00
Feb.	28.02	19.50	27.00	26.38	17.75	25.00
Mar.	30.26	19.39	26.20	30.02	18.00	24.50
April	31.00	20.54	25.00	31.00	19.30	22.50
May	30.10	24.40	24.25	28.06	24.91	21.87
June	28.50	25.00	23.00	26.57	25.00	20.70
July	26.70	25.00	20.88	24.75	24.56	18.80
Aug.	26.50	28.67	20.00	25.00	25.41	18.33
Sept.	.....	33.50	20.00	.....	32.93	19.25
Oct.	.....	33.50	20.00	.....	30.00	19.00
Nov.	.....	31.75	20.00	.....	27.60	19.00
Dec.	.....	28.10	20.00	.....	24.57	18.69
Year	.....	25.75	23.19	.....	24.02	21.47

All prices are f.o.b. valley furnace; freight, August 26, 1920, $1.96; August 1, 1922, $1.77.

STEEL CORPORATION BOOKINGS

Changes in unfilled tonnage with shipments and bookings estimated in percentage of capacity.

	Shipments.	Bookings.	Difference.	Difference.
1922.				
Jan.	47	45	— 2	— 26,736
Feb.	57	49	— 8	— 100,609
Mar.	65	90	+25	+ 353,079
April	70	115	+45	+ 602,769
May	75	86	+11	+ 157,311
June	75	103	+28	+ 381,303
July	75	86	+11	+ 140,630
Aug.	67	79	+12	+ 173,944
Sept.	67	121	+54	+ 741,502
Oct.	76	91	+15	+ 210,680
Nov.	81	76	— 5	— 62,045
Dec.	80	73	— 7	— 94,539
Jan., 1923	86	97	+11	+ 165,073
Feb.	88	117	+29	+ 373,213
Mar.	89	97	+ 8	+ 119,343
April	93	84	— 9	— 114,823
May	93	72	—21	— 307,158
June	92	49	—43	— 595,090
July	89	53	—36	— 475,498

Unfilled Orders.

At end of the quarter, last three figures omitted.

	First.	Second.	Third.	Fourth.
1910	5,402	4,257	3,158	2,674
1911	3,447	3,361	3,611	5,084
1912	5,304	5,807	6,551	7,932
1913	7,468	5,807	5,003	4,282
1914	4,653	4,032	3,787	3,836
1915	4,255	4,678	5,317	7,806
1916	9,331	9,640	9,522	11,547
1917	11,711	11,383	9,833	9,381
1918	9,056	8,918	8,297	7,379
1919	5,430	4,892	6,284	8,265
1920	9,892	10,978	10,374	8,148
1921	6,284	5,117	4,560	4,268
1922	4,494	5,635	6,691	6,746
1923	7,403	6,386	....	....

February and merchant furnaces at a smaller rate than any month since January of this year.

Production of coke and anthracite iron in August was at the rate of 40,447,840 tons a year against a July rate of 43,326,595 tons and a June rate of 44,632,200. Including charcoal iron the August rate was approximately 40,468,000 tons annually. On September 1st coke and anthracite iron was being produced at the rate of 38,905,000 tons against a rate on August 1st of 41,792,500 and a July rate of 45,625,000 tons. On September 1st, including charcoal iron, iron was being produced at the rate of 38,925,000 tons.

August production of pig iron decreased about 6½% as compared with the preceding month and about 11% as compared with the maximum output in May.

STEEL PRODUCTION

Production of steel ingots by all steel companies in August amounted to 3,679,441 tons, equivalent to 136,276 tons a day, according to the compilations of the American Iron & Steel Institute. The companies which report to the Institute had a total production of 3,508,347 tons, equivalent to a daily rate of 129,938 tons.

In July total production of all companies was 3,514,241 tons, equivalent to 140,570 tons a day. July production by the companies reporting to the Institute was 3,350,829 tons, equivalent to 124,104 tons a day, the July figures having been revised by the Institute.

Of the total production in August, Steel Corporation is credited with 1,737,045 tons equivalent to a daily rate of 64,335 tons while the independent companies are credited with 1,942,396

IMPORTANT STEEL PRICE CHANGES

At the end of 1920 prices of independent steel producers had declined to Industrial Board schedule of Mar. 21, 1919, to which U. S. Steel Corporation had meanwhile adhered. These prices are given under date of Jan. 1, 1921, subsequent changes being in open market. Only the more important changes are listed.

BARS.

Jan. 1, 1921	2.35	Mar. 29	1.50
Feb. 11	2.00	May 17	1.60
April 13	2.10	July 26	1.70
June 24	2.00	Aug. 9	1.80
July 5	1.90	Aug. 25	1.90
July 26	1.75	Sept. 27	2.00
Sept. 9, 1921	1.65	Jan. 31, 1923	2.10
Sept. 27	1.60	Feb. 16.	2.20
Nov. 9	1.55	Feb. 23,	2.25
Dec. 19	1.50	April 2,	2.35
Feb. 18, 1922	1.40	April 27	2.40

PLATES

Jan. 1, 1921	2.65	Nov. 9	1.50
Feb. 10	2.40	Feb. 18, 1922	1.40
Feb. 17	2.25	April 5	1.50
Feb. 23	2.10	May 25	1.60
April 13	2.20	July 26	1.70
June 10	2.00	Aug. 9	1.80
July 15	1.90	Aug. 25	2.00
July 26	1.85	Jan, 19, 1923	2.10
Aug. 25, 1921	1.80	Feb. 9	2.20
Sept. 2	1.75	Feb. 23.	2.25
Sept. 9	1.65	Mar. 21	2.35
Sept. 27	1.60	April 2,	2.45
Oct. 27	1.55	April 27	2.50

SHAPES

Jan. 1, 1921	2.45	Dec. 21	1.50
Feb. 11	2.25	Feb. 18, 1922	1.40
Feb. 17	2.20	Mar. 9	1.50
Feb. 28	2.10	May 25	1.60
April 13	2.20	July 26	1.70
June 24	2.00	Aug. 9	1.80
July 22	1.90	Aug. 25	2.00
July 26	1.85	Jan. 19, 1923	2.10
Aug. 25, 1921	1.80	Feb. 16	2.20
Sept. 2	1.75	Feb. 23	2.25
Sept. 9	1.70	Mar. 21	2.35
Sept. 26	1.65	April 2	2.45
Sept. 27	1.60	April 27	2.50

STEEL PIPE

Jan. 1, 1921	57½%	Sept. 16	68½%
Mar. 24	58½%	Dec. 16	71%
April 7	59½%	Aug. 23, 1922	68%
April 13	62½%	Oct. 19, 1923	66%
July 9, 1921	64½%	Feb. 3, 1923	64%
		April 19	62%

WIRE NAILS

Jan. 1, 1921	3.25	Dec. 9,	2.75
Feb. 17	3.10	Dec. 21	2.50
Mar. 4	3.00	Feb. 21, 1922	2.40
April 13	3.25	Aug. 30	2.60
June 1	3.00	Sept. 27	2.70
July 9, 1921	2.75	Feb. 1, 1923	2.80
Sept. 12	2.90	Mar. 26,	2.90
		April 20,	3.00

BLACK SHEETS

Jan. 1, 1921	4.35	Sept. 22	3.00
Feb. 11	4.15	Nov. 1	2.90
Mar. 8	4.00	Nov. 25	3.00
Mar. 17	3.85	April 7, 1922	3.15
April 13	4.00	Aug. 14	3.35
July 5	3.50	Feb. 23, 1923	3.60
July 26, 1921	3.25	Mar. 27,	3.75
Aug. 1	3.00	April 3,	4.00
Aug. 25	2.75	April 26	3.85

TIN PLATE

Jan. 1, 1921	7.00	Mar. 21, 1922	4.60
April 13	6.25	April 5	4.65
June 7	6.00	April 24	4.70
June 14	5.75	May 17	4.75
Aug. 1, 1921	5.25	Feb. 26, 1923	5.00
Sept. 15	5.00	Mar. 23	3.00
Sept. 19	4.75	Mar. 27,	5.50

BLUE ANNEALED SHEETS

Jan. 1, 1921	3.55	Sept. 22	2.50
Feb. 11	3.35	Nov. 1	2.25
Feb. 16	3.20	April 7, 1922	2.40
Mar. 8	3.00	Aug. 14	2.50
April 13	3.10	Sept. 20	2.60
June 10	2.90	Nov. 23,	2.50
July 6, 1921	2.65	Feb. 23, 1923	2.75
Aug. 2	2.40	Mar. 23	3.00
Aug. 16	2.25	April 3,	3.25
		April 26	3.00

GALVANIZED SHEETS

Jan. 1, 1921	5.70	Aug. 25	3.75
Feb. 11	5.55	Sept. 22	4.00
Feb. 16	5.35	Nov. 1	3.90
Feb. 24	5.25	Nov. 25	4.00
Mar. 8	5.10	April 7, 1922	4.15
Mar. 17	5.00	Aug. 14,	4.35
June 22	4.75	Feb. 23, 1923	4.75
July 5, 1921	4.50	Mar. 20	5.00
July 22	4.25	April 3,	5.25
Aug. 2	4.00	April 26	5.00

tons equivalent to 71,940 tons a day. The Corporation subsidiaries utilized 88½% of capacity and the independent companies 74½% of capacity while the industry as a whole employed 80.16% of total capacity.

While the total production of steel ingots in August was 165,200 tons larger than the total in July the daily rate showed a decrease of 4,294 tons, equivalent to 3% reduction. Total production of steel in August was at the rate of 42,245,560 tons a year, whereas the annual rate in July was 43,598,090 tons. August output was the smallest monthly production since December, 1922.

HEAVY ROLLED STEEL

The market remained firm at 2.40c for bars and 2.50c for shapes and plates. Bar mills were kept quite busy, while some structural mills began to run a trifle bare of orders, and many plate mills got into the position of being able to offer very early shipments. The difference between the amount of plate inquiry and the amount of plate buying was noteworthy.

FABRICATED STEEL.

One or two relatively large contracts for fabricated steel were verbally placed late in August but the probability is that as the official contracts were not signed, this tonnage will not be reflected in August bookings of the shops. The largest single contract was 22,000 tons for the Central Railroad of New Jersey bridge over an arm of the Newark Bay. The award was verbally made to the American Bridge Company, but as the steel will not be required for two or three years it is improbable that the official contract will be signed within the next month or so.

It is estimated that verbal awards during the month aggregated between 75,000 and 80,000 tons, indicating that the total bookings for all shops were not much if any over 100,000 tons. This is equivalent to about 40% of shop capacity. The August bookings, therefore, were the smallest for any month since January 1922.

It is notable that the railroads placed orders for less than 5,000 tons of bridge work during the month and railroad work pending is also small. Railroad bridge contracts, of course, do not in-

Allegheny Steel
and
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SHEETS BOILER TUBES
PLATES WASHERS
STEEL CASTINGS
Hot and Cold Pressed Stampings

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SOLICITING AGENTS
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Steel Sales Corporation, 129 South Jefferson Street, Chicago.

clude the Central Railroad of New Jersey business but with the latter railroad orders have amounted to a little over 27,000 tons.

Oil companies which were conspicously in the market for storage tanks in July placed relatively few contracts for tanks in August and some of the work which had been pending was withdrawn. It is estimated, however, that about 20,000 tons of plates for oil storage tanks were still pending when the month closed.

Among the most recent contracts placed is the first unit of the Ford Motor Company steel plant on the River Rouge which will be furnished by the Carnegie Steel Company and the fabrication done by the McClintic-Marshall Company. Among the largest contracts closed was an apartment hotel in the Grand Central area calling for 8,000 tons of steel. The original contract for this building called for 5,000 tons but it was subsequently increased by 3,000 tons. The contract for the Roosevelt Hotel which originally called for 6,000 tons has been increased to 7,500 tons. An office building in the Grand Central area also calls for 7,500 tons of shapes. These supplementary orders for buildings in New York City have been an important feature of business in the last few weeks. School houses in Greater New York have called for about 4,000 tons of steel and about 12,000 tons are still pending.

Emergency orders for steel sheets and concrete reinforcing steel bars have already come into the market for export to Japan since the earthquake catastrophe which wrecked a large part of Yokohoma and Tokio. One single inquiry is reported for 10,000 tons of sheets and one for 5,000 tons of bars. It is assumed these inquiries must come from local Japanese houses in the absence of cables from Japan.

According to the Department of Commerce July fabricated steel orders reported by 156 firms amounted to 113,331 tons, upon which basis it was computed that total orders in July amounted to 125,000 tons, equivalent to 50% of shop capacity, based on a total capacity of 250,000 tons monthly.

Tonnage booked each month by 175 identical firms, with a capacity of 229,575 tons per month, is shown below, together with the per cent. of shop capacity represented by these bookings. For comparative purposes, the figures are also prorated to obtain an estimated total for the United States on a capacity of 250,000 tons per month.

1922	Actual Tonnage booked	per cent. of capacity	Estimated Total bookings
April ...	200,588	87	217,500
May	184,638	81	202,500
June	168,498	73	182,500
July	157,631	69	172,500
Aug.	156,011	68	170,000
Sept. ...	146,146	64	160,000
Oct.	132,450	58	145,000
Nov.	111,794	49	122,500
Dec.	138,024	60	150,000
1923—			
Jan.	172,415	75	187,500
Feb.	183,938	80	200,000
March ...	218,997	95	237,500
April ...	185,335*	81	202,500
May	131,291*	57	142,500
June ...	116,609†	51	127,500
July ...	113,331‡	50	125,000
August ..	80,000§	40	100,000

* Reported by 174 firms with a capacity of 229,375 tons

† Reported by 170 firms with a capacity of 228,160 tons.

‡ Reported by 156 firms with a capacity of 224,640 tons.

§ Estimated.

Percentage of fabricated orders to total shop capacity.

	1922	1921	1920	1919	1918	1917
Jan.	40%	18%	75%	12%	53%	61½
Feb.	43½	14	95	12½	55½	59
Mar.	77	29	83½	17½	47	68
April	89	31	68	24½	64	61
May	81	28	61½	49	60	56½
June	73	37	50	65	56	47½
July	69	33½	50	74	116½	41½
Aug.	68	33	40	78½	57	38
Sept.	64	48	43	78½	60	29
Oct.	58	54	25½	77½	43	61½
Nov.	49	55	27½	69	27	77
Dec.	58	40	26	85	29	114
Av.	64.2	35	53¾	53½	55½	59½

1923—	
January	75
February	80
March	95
April	81
May	58
June	51
July	50
August	*48
Monthly average	67.2

* Estimated.

STEEL INGOT OUTPUT

Monthly production of steel ingots, January, 1922, To December, 1922. Reported by companies which made 84.15% of the steel ingot production in 1922.

Months 1922.	Open-hearth	Bessemer	All Other	Monthly Production Companies Reporting	Calculated monthly production all Companies	No. of Working days	Approximate daily production all Companies.
January	1,260,809	331,851	822	1,593,482	1,891,857	26	72,764
February	1,395,835	348,571	616	1,745,022	2,071,772	24	86,324
March	1,918,570	451,386	795	2,370,751	2,814,667	27	104,247
April	1,997,465	445,939	1,109	2,444,513	2,902,240	25	116,090
May	2,214,774	494,893	1,474	2,711,141	3,218,794	27	119,215
June	2,143,708	487,851	2,918	2,634,477	3,127,775	26	120,299
July	2,020,572	464,047	2,485	2,487,104	2,952,806	25	118,112
August	1,807,310	404,379	2,893	2,214,582	2,629,256	27	97,380
September ..	1,911,147	460,127	2,505	2,373,799	2,818,261	26	108,395
October	2,352,207	518,010	2,198	2,872,415	3,410,265	26	131,164
November ...	2,360,903	525,945	2,449	2,889,297	3,430,309	26	131,935
December	2,241,104	536,214	2,572	2,779,890	3,300,416	25	132,017
Total	23,624,404	5,469,213	22,836	29,116,453	34,568,418	310	111,511

Monthly production of steel ingots, January, 1923 to August, 1923. Reported for 1923 by companies which made 95.35% of the steel ingot production in 1922.

Months 1923.	Open-hearth	Bessemer	All Other	Monthly Production Companies Reporting	Calculated monthly production all Companies	No. of Working days	Approximate daily production all Companies.
January	2,906,892	728,270	9,467	3,664,629	3,822,369	27	141,569
February	2,613,564	669,903	10,797	3,294,264	3,454,918	24	143,955
March	3,046,309	779,525	12,841	3,858,675	4,046,854	27	149,883
April	2,974,579	772,485	13,933	3,760,997	3,944,412	25	157,776
May	3,136,558	847,418	16,719	4,000,695	4,195,800	27	155,400
June	2,821,239	737,845	15,483	3,574,567	3,748,890	26	144,188
Six mos...	17,499,141	4,555,446	79,240	22,133,827	23,213,243	156	148,803
July	2,658,449	680,884	11,496	3,350,829	3,514,241	25	140,570
August	2,797,962	701,059	9,326	3,508,347	3,679,441	27	136,276

FINISHED STEEL PRICES.

(Averaged from daily quotations, f. o. b. Pittsburgh.)

	Shapes.	Plates.	Bars.	Pipe	Wire.	Wire Nails.	Grooved Steel Skelp.	Sheets Black.	Sheets Galv.	Sheets Blue Annld.	Tin plate.	Comp. Fin. Steel.
Jan. 1922	1.50	1.50	1.50	71	2.25	2.50	1.50	3.00	4.00	2.25	4.75	2.16
Feb.	1.46	1.46	1.46	71	2.22	2.47	1.46	3.00	4.00	2.25	4.75	2.14
Mar.	1.41	1.39	1.41	71	2.25	2.40	1.40	3.00	4.00	2.25	4.61	2.09
April	1.50	1.49	1.50	71	2.25	2.40	1.50	3.12	4.12	2.37	4.66	2.16
May	1.52	1.52	1.55	71	2.25	2.40	1.55	3.15	4.15	2.40	4.72	2.18
June	1.60	1.60	1.60	71	2.25	2.40	1.60	3.15	4.15	2.40	4.75	2.22
July	1.62	1.62	1.62	71	2.25	2.40	1.62	3.15	4.15	2.40	4.75	2.23
Aug.	1.82	1.82	1.80	70⅛	2.26	2.41	1.80	3.27	4.27	2.46	4.75	2.36
Sept.	2.00	2.00	1.92	68	2.37	2.62	2.10	3.35	4.35	2.60	4.75	2.51
Oct.	2.00	2.08	2.00	66⅞	2.45	2.70	2.05	3.35	4.35	2.70	4.75	2.57
Nov.	2.00	2.00	2.00	66	2.45	2.70	2.00	3.35	4.35	2.55	4.75	2.57
Dec.	2.00	2.00	2.00	66	2.45	2.70	2.00	3.35	4.35	2.50	4.75	2.57
Jan. 1923	2.04	2.04	2.00	66	2.49	2.70	2.00	3.35	4.35	2.50	4.75	2.59
Feb.	2.16	2.18	2.16	64¼	2.61	2.80	2.16	3.40	4.49	2.55	4.78	2.72
Mar.	2.29	2.29	2.25	64	2.70	2.82	2.30	3.63	5.00	2.95	5.09	2.83
April	2.46	2.46	2.36	63¼	2.70	2.94	2.40	3.97	5.20	3.20	5.50	2.99
May	2.50	2.50	2.40	62⅝	2.75	3.00	2.42	3.85	5.10	3.15	5.50	3.03
June	2.50	2.50	2.40	62	2.75	3.00	2.40	3.85	5.00	3.10	5.50	3.03
July ...	2.50	2.50	2.40	62	2.75	3.00	2.40	3.85	5.00	3.00	5.50	3.03
Aug.	2.50	2.50	2.40	62	2.75	3.00	2.40	3.85	5.00	3.00	5.50	3.03
Yearly averages:												
1913	1.42	1.41	1.38	79¾	1.50	1.70	1.39	2.20	3.28	1.68	3.56	1.72
1914	1.16	1.14	1.15	80	1.37	1.57	1.17	1.89	2.87	1.38	3.35	1.52
1915	1.30	1.29	1.31	79¼	1.48	1.66	1.27	1.93	3.85	1.49	3.19	1.63
1916	2.50	2.82	2.48	70⅞	2.45	2.53	2.34	3.06	4.85	2.99	5.34	2.80
1917	3.66	5.21	3.49	52⅛	3.48	3.56	3.95	6.29	8.21	6.15	7.85	4.46
1918	2.99	3.24	2.89	51⅛	3.25	3.50	2.89	4.98	6.24	4.23	7.73	3.79
1919	2.53	2.71	2.43	56¾	3.06	3.31	2.51	4.43	5.78	3.63	7.08	3.32
1920	2.99	3.20	2.99	55⅝	3.40	3.67	3.00	5.85	7.39	5.06	7.29	3.63
1921	1.07	1.96	1.89	63¾	2.77	2.98	1.96	3.54	4.57	2.74	5.83	2.69
1922	1.70	1.71	1.70	69½	2.31	2.51	1.72	3.19	4.19	2.43	4.73	2.31

SEMIFINISHED STEEL

Early in August there was a little offering of semifinished steel at under the recognized basis of $42.50, Pittsburgh or Youngstown, for slabs, billets and sheet bars. At all times the regular producers adhered to this price, and late in August all disposition to cut the price seems to have disappeared, through mills recognized the importance of preserving stability. There was scarcely any buying demand, consumers being well covered by contracts for the quarter. The price will no doubt be named by mills on fourth quarter contracts, though some consumers may prefer not to engage themselves for the whole quarter.

TUBULAR GOODS

Pipe mills had a good operation in August, having a good supply of labor, in contrast with the scant supply in cutting and threading departments in the second quarter of the year. Demand for oil country goods decreased slightly while demand for merchant pipe increased.

SHEETS

Sheet business was light in August, but as some mills were filled by old business the new business was sufficient to maintain a very fair operation. On September 6th the American Sheet & Tin Plate Company opened fourth quarter order books, at unchanged prices, 3c for blue annealed, 3.85c for black, 5c for galvanized and 5.35c for automobile sheets. Previously there had been a little independent selling. The leading interest will carry over about a month's tonnage in sheets, and some of the independents will carry over some business. Others have much tonnage to offer even for September.

TIN PLATE

Tin plate deliveries on third quarter contracts will not all be completed by October 1st. There is not much new demand, except in oil plates. Fourth quarter booking began September 6th when the leading interest set the pace by opening order books for fourth quarter at the old price, $5.50, but it will carry over something like six weeks of business. Some of the independents will also carry over business.

WIRE PRODUCTS

Delivery periods have been shortening in wire products and this has helped to make consumers and distributors less anxious to place new business. Buying seems to have been slightly heavier in August than in July, but even at that it barely exceeded half the shipments. Prices have been readily maintained.

SCRAP

After declining in price and losing in tone quite steadily for four months, the scrap market at the beginning of August developed a very distinct improvement in tone, and this was followed in due course by some price advances. By the end of the month the price advancing tendency had been practically lost, but the recorded gains were helped. Dealers in some districts were paying more than mills would offer, evidently being fearful of further advances. The dealer buying was purely to cover shorts, there being no thought of putting any scrap into stock for speculation. Mills as a rule were quite indisposed to buy.

IRON AND STEEL SCRAP PRICES

	Heavy melting steel.			No. 1 cast.	
	Pitts.	Phila.	Chic.	Pitts.	Chic.*
Jan., '22	14.67	11.45	11.70	16.60	12.75
Feb. ...	14.25	11.50	11.75	16.25	12.80
Mar. ...	25.35	11.75	12.50	16.25	13.50
April ..	16.60	14.25	13.80	17.25	14.70
May ...	17.25	14.70	14.95	18.25	15.80
June ...	17.25	14.50	14.80	18.60	15.50
July ...	16.85	14.40	15.40	19.25	16.00
Aug. ...	17.45	14.75	16.00	19.35	17.25
Sept. ..	20.00	17.00	17.50	21.75	18.60
Oct. ...	21.00	18.35	18.65	24.00	19.60
Nov. ...	20.50	16.65	17.60	23.20	18.50
Dec. ...	20.40	16.70	17.50	22.75	18.35
Year ..	17.63	14.67	15.18	19.46	16.11
Jan., '23	22.00	20.85	19.30	23.50	20.40
Feb. ...	23.35	21.10	20.00	24.15	22.50
Mar. ...	25.30	35.25	23.45	26.25	24.75
April ..	25.00	24.00	22.25	27.15	23.20
May ...	22.50	20.25	19.50	26.25	20.75
June ...	21.10	18.30	18.25	24.40	18.85
July	18.35	17.10	17.20	21.85	18.15
Aug. ...	17.90	16.25	16.20	21.75	17.75

* Per net ton.

The New York Central and Canadian Pacific Railways are jointly interested in the bridge to span the Niagara River. Contract for the construction is expected to be awarded in the near future as government sanction has been obtained.

FERRO-ALLOYS

At the end of August there was some little increase in the inquiry for ferromanganese but mainly in carload lots for early delivery. Most of the small lots of resale alloy that were offered for a week or so under the prices of producers have been taken up and the market is now steadier at $117.50 a ton delivered to consumers for domestic alloy and the same price c.i.f. seaboard duty paid for 80% foreign alloy.

In July imports of ferromanganese amounted to 11,314 tons, according to government returns, and the total received during the first seven months of the year was 58,049 tons, averaging about 8,300 tons a month. Specifications against contracts have been quite satisfactory.

July production of ferromanganese by American blast furnaces, amounting to 26,400 tons, was the largest monthly tonnage this year. The highest previous output was in September 1920.

Spiegeleisen continued quiet but steady throughout the month. The undertone of the market, however, was easier at the close and most of the small orders are being taken at $45.00 furnace for 19% to 21% as domestic producers are in an easier position. 16% to 19% alloy is quotable at $44.00 per ton at the furnace.

Sales of 50% ferro-silicon were confined mainly to carload lots at prices ranging from $82.50 to $85.00 delivered. Bessemer ferro-silicon and silvery iron have remained steady throughout the month with practically no change in prices.

Imports of manganese ore in July, according to recent government reports, amounted to 23,824 tons, making the total for the first seven months 104,212 tons or at an average rate of 14,900 tons a month. Actual new business has been lacking and the price for both Indian and Brazilian ore is nominally quotable at 40c per unit c.i.f. Atlantic ports.

Ferro-tungsten has been available at 88c to 90c a pound and metal powder at 95c to $1.00 a pound. Ferro-chromium has been quiet but steady at 11.50c to 12c per unit and ferro-vanadium unchanged at $3.50 to $4.00 a pound for contained vanadium. Chrome ore has met with a moderate demand with negotiations for some tonnage of Indian ore at $19.25 a ton c.i.f. Baltimore. Rhodesian chrome ore is held at $22.00 to $23.00 a ton. Some few sales of Chinese tungsten ore have been made at $8.25 and $8.50 per unit but high grade scheelite ore has been held at $9.50 per unit. High grade wolframite is quotable at $8.75 to $9.00 per unit.

COAL

The coal industry during the month of August was in more or less of a turmoil from the labor standpoint because of the wage negotiations between anthracite operators and miners, held for the purpose of formulating a new wage agreement to become effective September 1st at the expiration of the old agreement. Failure to reach any conclusions, however, led to a strike call being issued by the anthracite miners' officials, and the closing days of the month found Governor Pinchot of Pennsylvania proposing a basis of settlement upon which the two sides might get together so that the strike would be averted. Up to the 31st day of the month, however, all efforts to bring the two sides together seemed futile.

In the bituminous branch of the industry, there was not the slightest ripple of excitement, notwithstanding the possibility that if the anthracite strike were called, the bituminous trade would be called upon to furnish a large amount of the substitute fuel that the anthracite consumers might be forced to use. Considerable publicity was given to the program outlined by the National Coal Association, the bituminous operators' organization, upon which they proposed to speed up the production and distribution of bituminous coals in the anthracite consuming states at prices controlled by the federal government, but the plan generally was found not acceptable to the governors of the anthracite coal consuming states, although a gathering of these officials in New York on August 28th endorsed the plan of the Federal Fuel Distributor, F. R. Wadleigh, to work toward the education of the public in the use of anthracite substitutes.

Therefore, although the plan of the operators' national organization was not generally accepted, the fact that

the Federal authorities advocated the use of soft coal among other substitutes, prompted many of the Pennsylvania bituminous operators to install equipment for the preparation of bituminous lump coal that mght be sold in the domestic trade in the event of an anthracite strike. It has been found that the low volatile soft coals are more readily adapted to the domestic trade than are the high-volatile coals, so that it is chiefly in Cambris and Somerset counties in Pennsylvania where preparation is being made to ship the domestic sizes. Some companies, in fact, have already established a steady market for these coals since the last strike, and the basis of sales of these coals to the retail trade is generally from $5.50 to $7.00 net ton at the mines, according to size and quality of the coal. Recently, also, the inquiry for coke has been getting stronger because of the fact that many wholesalers and retailers look upon it as the most logical substitute for anthracite coal, preferring it to bituminous coal. The coke market, therefore has probably been the only branch to definitely reflect the talk of an anthracite strike.

Among the industrial consumers, there has been no excitement concerning the possibility of an anthracite strike and they apparently take the view that there will be plenty of coal for all concerned despite any additional call for domestic soft coals. About the only noticeable effect of the strike talk has been to make some of the smaller consumers buy a little more bituminous coal, but even these are willing to buy only at such cheap prices that not the slightest evidence of improvement in bituminous prices could be recorded up to the end of August.

The reason for the indifference of the average industrial consumer toward bituminous coal offers at this time is probably the fact that nearly each one (of any size) is well supplied with stocks, and therefore is relieved of worry about coal supplies for the next few months. On July 1st, according to the United States Geological Survey, commercial consumers had 45,000,000 net tons of soft coal in storage, or 3,000,000 net tons more than on June 1st. Thus it was evident that with the consumption rate and the mining rate having remained fairly constant through July and August, stocks must have amounted to at least 50,000,000 net tons (bituminous) on September 1st. The railroads were reported by the American Railway Association to have had more than 14,000,000 tons of coal on hand on August 1st, and it was expected, would have about 18,000,000 tons by September 1st. This, it was said, would constitute almost 100% of their requirements until next Spring.

In the matter of prices, no drastic changes have been recorded within the past month. The West Virginia smokeless coals, which move to both tidewater and the central west markets, have been selling recently at the mines for $6.00 to $6.25 net ton for the prepared sizes, and $3.00 to $3.25 for run of mine. At the Hampton Roads' piers, these coals were selling on August 31st at about $5.00 to $5.25 gross ton.

At the Pennsylvania mines, some of the best grades can be bought for between $2.00 and $2.50 net ton at the mines, and so long as these coals are available at such low spot prices, it is unlikely that any new contracts will be made to carry over for the balance of the year, since the consumers could not obtain their supplies at such low prices on a long-term contract. At the New York piers, where the average supply of bituminous is about 2,500 cars daily, demand and prices are easy, and $5.00 to $5.50 gross ton will buy the best grades.

The almost total absence of a panicky feeling was noteworthy considering the fact that the anthracite strike was the chief topic of conversation at the end of the month.

The next Chemical Exposition following the one which will be held this year at the Grand Central Palace, New York, during the week of September 17th, will be in 1925. This year's Exposition offers the last opportunity to see the chemical, equipment and machinery exhibits for a period of two years.

EXPORTS OF IRON AND STEEL PRODUCTS FROM THE U. S.

Value of tonnage and non-tonnage.

	*1923	*1922	1921
Jan.	$14,866,090	$15,141,083	$137,803,395
Feb.	14,865,590	12,950,603	101,205,061
Mar.	14,543,155	18,836,718	67,870,739
April	20,146,346	17,549,618	49,609,605
May	22,681,660	17,749,475	41,365,886
June	21,242,193	18,649,816	39,975,035
July	21,582,626	14,611,858	27,639,787
Aug.	.....	13,963,749	27,647,816
Sept.	.....	14,380,851	26,740,228
Oct.	.....	14,626,411	29,706,437
Nov.	.....	14,249,434	28,543,142
Dec.	.....	16,668,116	29,502,448

* Excluding machinery.

1922..	$ 188,841,433	1916..	$871,372,322
1921..	607,427,146	1915..	390,897,123
1920..	1,112,904,802	1914..	199,861,684
1919..	968,575,142	1913..	293,934,160
1918..	1,035,291,736	1912..	289,128,420
1917..	1,240,984,979	1911..	249,656,411

Tonnage Lines.

(Gross tons.)

	1923	1922	1921	1920
Jan.	123,190	160,920	547,394	333,601
Feb.	133,902	133,975	393,328	308,185
Mar.	163,920	208,843	230,635	417,216
April	177,471	198,830	162,592	395,120
May	203,389	230,062	104,072	420,359
June	171,183	212,295	119,081	402,707
July	168,558	157,169	86,523	458,866
Aug.	.....	145,640	75,827	431,484
Sept.	.....	129,475	95,169	409,200
Oct.	.....	132,924	106,582	452,015
Nov.	.....	127,782	122,290	434,297
Dec.	.....	150,170	134,415	498,765

Yearly totals.

1922	1,986,297	1916	6,105,881
1921	2,213,042	1915	3,532,606
1920	4,961,851	1914	1,549,554
1919	4,239,837	1913	2,745,535
1918	5,338,037	1912	2,947,596
1917	6,441,760	1911	2,187,724

IMPORTS OF IRON ORE INTO THE UNITED STATES.

	1923	1922	1921	1920
Jan.	205,532	19,433	82,424	88,881
Feb.	143,702	10,016	47,466	100,105
Mar.	166,626	12,013	26,483	108,643
April	171,459	2,710	35,645	88,670
May	263,792	29,707	58,704	103,325
June	277,380	133,817	8,424	104,364
July	439,367	166,711	7,040	28,846
Aug.	.....	160,173	24,570	174,169
Sept.	.....	127,838	4,954	73,675
Oct.	.....	*123,207	5,838	141,026
Nov.	.....	165,648	12,065	139,854
Dec.	.....	167,221	2,155	117,898

Yearly totals.

1922	1,140,463	1916	1,325,736
1921	315,768	1915	1,341,281
1920	1,273,456	1914	1,350,588
1919	476,461	1913	2,594,770
1918	787,468	1912	2,104,576
1917	971,663	1911	1,811,732

* Sept. 22 to Oct. 31.

BITUMINOUS COAL PRODUCTION

(Net tons of 2,000 lbs.)

	1923.	1922.	1921.
Jan. ...	50,178,000	37,604,000	40,270,000
Feb. ...	42,160,000	40,980,000	30,851,000
Mar. ...	46,802,000	50,167,000	30,392,000
April ..	42,564,000	15,700,000	27,553,000
May ...	46,076,000	20,601,000	33,330,000
June ..	45,490,000	22,309,000	33,896,000
July ...	45,126,000	17,003,000	30,385,000
Aug. ...	48,500,000	27,358,000	34,538,000
Sept. ..	.....	39,510,000	35,127,000
Oct. ...	.....	45,141,000	43,733,000
Nov. ...	.....	45,303,000	36,020,000
Dec. ...	.....	44,500,000	30,975,000
Total	366,900,000	405,944,000	407,000,000

CONNELLSVILLE COKE.

Spot for prompt, per net ton f.o.b. ovens.

	— Furnace —			— Foundry —		
	1923.	1922.	1921.	1923.	1922.	1921
Jan.	8.30	2.85	5.10	9.25	4.00	6.75
Feb.	7.30	3.10	4.80	8.50	4.15	6.15
Mar.	7.35	3.38	4.43	8.60	4.50	5.63
Apr.	6.25	4.44	3.60	7.80	5.21	5.15
May	5.25	6.50	3.40	6.50	6.75	5.10
June	5.00	7.50	3.12	5.85	7.85	4.67
July	4.60	11.35	2.95	5.60	11.70	4.20
Aug.	4.65	13.35	2.95	5.55	15.00	4.20
Sept.	....	11.50	3.26	....	13.25	4.34
Oct.	....	9.70	3.35	....	11.90	4.40
Nov.	....	7.35	3.15	....	8.70	4.17
Dec.	....	7.75	2.90	....	8.15	4.00
Av.	....	7.40	3.58	....	8.43	4.90

BRITISH IRON AND STEEL OUTPUT.

Pig Iron—(Gross tons).

	1923	1922	1921
Jan.	567,900	288,000	642,100
Feb.	543,400	300,100	463,600
March ...	633,600	389,800	386,000
April	652,200	394,300	60,300
May	714,200	407,900	13,600
June	692,900	369,200	800
July	655,100	399,100	10,200
Aug.	.....	411,700	94,200
Sept.	.....	430,300	158,300
Oct.	.....	481,500	235,500
Nov.	.....	493,900	271,800
Dec.	.....	533,700	275,000
Total ...	.....	4,899,500	2,611,400

Steel Ingots and Castings.

	1923	1922	1921
Jan.	624,300	327,500	493,400
Feb.	707,100	418,800	483,500
March ...	802,500	549,400	359,100
April	749,400	404,200	70,600
May	821,000	462,300	5,700
June	767,700	400,200	2,700
July	624,300	473,100	117,200
Aug.	.....	520,800	434,100
Sept.	.....	555,900	429,300
Oct.	.....	565,200	405,400
Nov.	.....	600,800	442,800
Dec.	.....	546,100	381,000
Total ...	.....	5,831,900	3,624,800

COPPER IN AUGUST

A realization that more copper was being produced from domestic and foreign ores than was required by consumers at home and abroad induced producers to enter into more active competition for business throughout August. Consumers, domestic and foreign, also were cognizant of the same fact and as a result buying was at a much reduced rate. The result was a slow but steady decline in prices until the market had fallen ¾c a pound. Electrolytic which at the beginning of August was held by producers at 14.50c to 14.62½c delivered, was finally sold during the latter part of the month at 13.62½c to 13.75c a pound, but there was a recovery of about ⅛c from the lowest point, so that the net decline was ¾c a pound.

Manufacturers of finished copper, brass and bronze products, while slow to respond to the decline in unwrought copper, made two revisions in prices during the month, each ranging from ½c to 1c a pound. This renewed evidence that consumption could not absorb the amount of copper produced reacted on unwrought copper accelerating the decline toward the close of the month, just after a better speculative sentiment had developed abroad as well as at home. As might have been expected dullness was again pronounced and the recovery in prices which had taken place was lost.

It is very doubtful that sales of producers in August on domestic and foreign account aggregated as much as 100,000,000 pounds, in fact, it would not be surprising to learn that current sales were less than 75,000,000 pounds.

Deliveries into domestic and foreign consumption by copper companies in North and South America in August probably fell short of 165,000,000 pounds and as there was little if any decrease in refined production — the estimate being close to 180,000,000 pounds—there was a further increase in producers' stocks of about 15,000,000 pounds. It was estimated also that in July stocks increased 12,500,000 pounds so that in the last two months producers' stocks have increased between 25,000,000 and 30,000,000 pounds. Surplus stocks of refined copper on September 1st were estimated very close to 235,000,000 pounds. In this connection it is significant that recent reports have indicated that not a little of the copper exported from this country to Europe recently has not gone directly to consumers but has been warehoused in Europe because of the more favorable terms for financing there than in the United States.

It is estimated that refined output in North and South America in the first eight months of this year was approximately 1,428,000,000 pounds, whereas total deliveries from North and South America during the same time have amounted to about 1,490,000,000. Surplus stocks, therefore, since January 1st have decreased only 64,000,000 pounds net. As stocks on January 1st were approximately 298,000,000 pounds they are today about 234,000,000 pounds.

Exports of copper from New York in August amounted to about 41,000,000 pounds and the exports from all ports of the United States were between 58,000,000 and 60,000,000 pounds. This brings the total exports from the United States in the first eight months of this year to 486,000,000 pounds approximately, but quite a fair percentage of this copper was finished products and is therefore to that extent a duplication of deliveries into domestic consumption. In the first eight months of last year exports from the United States were little over 500,000,000 pounds so that there has been a slight decrease thus far this year.

COPPER IN AUGUST

Day	— New York — Lake.	Electro.	Cast.	— London — Stand.	Electro.
				£ s. d.	£ s. d.
1	14.87½	14.50	14.25	64 17 6	72 0 0
2	14.75	14.45	14.12½	64 5 0	71 10 0
3	.....	.....	.....	64 10 0	71 10 0
6	14.75	14.40	14.12½	.....	.....
7	14.75	14.37½	14.06¼	64 17 6	71 5 0
8	14.62½	14.25	14.00	64 17 6	71 0 0
9	14.62½	14.18¾	13.93¾	64 12 6	70 10 0
10	.....	.....	.....	64 5 0	70 0 0
13	14.50	14.06¼	13.81¼	63 17 6	69 15 0
14	14.31¼	14.00	13.75	63 12 6	69 10 0
15	14.31¼	13.95	13.62½	63 15 0	69 5 0
16	14.31¼	13.97½	13.62½	63 17 6	69 10 0
17	14.31¼	13.95	13.62½	63 10 0	69 5 0
20	14.31¼	14.00	13.81¼	63 17 6	70 0 0
21	14.31¼	14.00	13.81¼	64 5 0	70 5 0
22	14.31¼	14.00	13.82½	64 17 6	70 10 0
23	14.31¼	14.06¼	13.82½	64 12 6	70 5 0
24	14.31¼	14.00	13.80	64 2 6	70 0 0
27	14.25	13.95	13.75	64 0 0	69 10 0
28	14.12½	13.85	13.70	63 12 6	69 5 0
29	14.06¼	13.75	13.60	63 0 0	68 15 0
30	14.00	13.65	13.50	62 17 6	68 10 0
31	14.00	13.65	13.50	62 12 6	68 0 0
High	14.87½	14.50	14.25	64 17 6	72 0 0
Low	14.00	13.60	13.50	62 12 6	68 0 0
Aver. ...	14.39	14.05	13.81	64 0 8	70 0 0

Imports of copper into the United States in the first half of this year were 135,000 tons. Estimating July and August conservatively at 25,000 tons a month would give us total imports in the first eight months of this year 185,000 tons, equivalent to 414,400,000 pounds or at the rate of 51,800,000 pounds a month. There is reason to expect, however, that this is too low. Exports during the same period have averaged 60,760,000 pounds a month but this is too high because it contains a considerable quantity of finished copper. The point to be made, however, is that exports so far this year have exceeded imports by less than 9,000,000 pounds a month. It is probably nearer 7,000,000 pounds.

There seems to be reason to believe that the drop in the price of unwrought copper this month has been sufficient to compensate for the increased production. Business usually quickens in the Fall. There is therefore some probability that the demand for both wrought and unwrought copper will improve in the next few months, which will probably be reflected in a firmer tone if not in higher prices.

It is a constructive feature that much of the second hand copper which was offering at concessions in competition with producers' output has been taken up and today second hands are as firm if not firmer in their views than are producers. Another factor is that there is less competition now among producers than there was throughout August. Custom smelters today have little copper to offer before November and most of the copper sent here from South Africa for refining has been sold for export to Europe. There is reason, therefore, to expect an improvement in the copper situation in September. Lake copper is now quotable at 14.00c to 14.12½c delivered against 14.87½c at the beginning of August. Electrolytic is held by producers at 13.75c to 13.87½c delivered today against 14.50c to 14.62½c delivered at the beginning of the month and casting copper is now difficult to buy under 13.62½c refinery against 14.25c refinery on August 1st.

Although some improvement is to be expected in the next few months there is no reason to anticipate a return to the activity which marked the first quarter

(Continued on page 469)

Dallas Brass & Copper Co.

Manufacturers of

Brass and Copper Products

Prompt Mill Deliveries

Prompt Shipments From Warehouses

CLEVELAND CHICAGO DETROIT

WATERBURY COPPER AVERAGES

	1923.	1922.	1921.	1920.	1919.
Jan. ..	14.87½	13.87½	13.75	19.50	23.00
Feb. ..	15.75	13.37½	13.50	19.12½	18.00
Mar. ..	17.25	13.12½	12.62½	18.87½	15.50
Apr. ..	17.12½	13.00	12.75	19.12½	15.50
May ..	16.12½	13.37½	13.12½	19.00	16.37½
June ..	15.25	14.00	13.12½	18.50	17.75
July ..	15.00	14.12½	12.87½	19.00	22.00
Aug. ..	14.50	14.12½	12.25	18.75	23.00
Sept. ..	.....	14.25	12.37½	18.75	22.50
Oct. ..	.....	14.25	13.12½	16.87½	22.25
Nov. ..	.....	14.12½	13.37½	15.25	21.00
Dec. ..	.....	14.50	13.87½	14.25	18.75
Av. ...	.....	13.84	13.06	18.06	19.63½

Annual Averages.

1918.....	24.75	1913.....	15.83
1917.....	30.11	1912.....	16.71
1916.....	28.85	1911.....	12.75
1915.....	18.94	1910.....	13.13
1914.....	13.91	1909.....	13.41

IMPORTS OF COPPER.

As compiled by the New York Metal Exchange and reduced to fine copper, in tons of 2,240 lbs.

	1923.	1922.	1921.	1920.
Jan.	16,500	5,500	17,500	16,500
Feb.	17,000	10,000	18,000	20,000
Mar.	23,500	15,000	10,000	17,500
April	15,500	16,000	15,500	12,000
May	34,000	12,000	7,000	23,000
June	28,500	19,000	9,000	22,000
July	.....	19,500	14,000	12,000
Aug.	.....	21,000	10,000	13,000
Sept.	.....	25,000	10,500	12,500
Oct.	.....	18,000	14,500	14,500
Nov.	.....	33,000	11,000	16,000
Dec.	.....	26,000	14,000	17,500
Totals ...	.....	220,000	151,000	196,500

EXPORTS OF COPPER.

As compiled by the New York Metal Exchange from Custom House returns, in tons of 2,240 lbs.

	1923.	1922.	1921.	1920.
Jan.	23,409	24,679	24,068	21,804
Feb.	21,643	22,910	27,748	25,700
Mar.	28,284	35,851	17,151	39,236
April	28,225	28,367	18,397	28,644
May	25,911	27,894	15,736	37,090
June	27,017	29,191	22,339	25,581
July	25,895	28,584	22,774	20,430
Aug.	.....	26,889	19,110	20,121
Sept.	.....	25,144	28,343	10,751
Oct.	.....	22,681	22,934	10,073
Nov.	.....	24,727	32,407	16,954
Dec.	.....	22,201	27,394	18,304
Total	.....	319,118	278,401	274,688

Annual Totals.

1919	227,169		
1918	328,844	1913	382,810
1917	493,256	1912	327,965
1916	327,310	1911	336,801
1915	270,704	1910	301,935
1914	360,229	1909	301,657

LAKE COPPER PRICES

Average prices in N. Y.—delivered.

	1923.	1922.	1921.	1920.	1919.
Jan. ...	14.92	13.76	13.53	19.76	21.75
Feb. ...	15.76	13.24	13.33	19.09	17.87
Mar. ...	17.26	13.03	12.58	18.87	15.48
April ..	17.13	12.91	12.89	19.05	15.73
May ...	16.12	13.42	13.12	18.85	16.30
June ...	15.24	13.97	13.04	18.55	17.93
July ...	14.95	14.07	12.75	18.83	22.08
Aug. ...	14.39	14.09	12.11	18.72	22.96
Sept. ...	.....	14.19	12.23	18.53	22.48
Oct.	.....	14.16	13.01	16.87	21.94
Nov. ...	.....	14.07	13.30	14.97	20.49
Dec. ...	.....	14.46	13.80	14.01	18.88
Average	.....	13.78	12.98	18.01	19.49

Annual Averages.

1918	24.68	1913	15.70
1917	29.18	1912	16.58
1916	28.17	1911	12.71
1915	17.64	1910	13.12
1914	13.61	1909	13.39

ELECTROLYTIC COPPER PRICES

Average prices in N. Y.—f.o.b. refinery.

	1923.	1922.	1921.	1920.	1919.
Jan. ...	14.66	13.60	12.85	19.02	20.00
Feb. ...	15.50	12.97	12.79	18.61	16.91
Mar. ...	16.95	12.84	12.23	18.36	15.01
April ..	16.81	12.71	12.54	18.54	15.40
May ...	15.63	13.29	12.83	18.28	16.01
June ...	14.88	13.71	12.76	17.97	17.65
July ...	14.59	13.90	12.35	18.61	21.71
Aug. ...	14.05	13.96	11.76	18.44	22.22
Sept. ...	.....	13.88	12.10	18.04	21.95
Oct.	.....	13.80	12.75	16.30	21.50
Nov. ...	.....	13.79	13.16	14.39	19.96
Dec. ...	.....	14.22	13.67	13.48	18.48
Average	.....	13.55	12.65	17.50	18.90

Annual Averages.

1918	24.68	1913	15.52
1917	29.19	1912	16.48
1916	28.46	1911	12.55
1915	17.47	1910	12.88
1914	13.31	1909	13.11

CASTING COPPER PRICES

Average prices in N. Y.—f.o.b. refinery.

	1923.	1922.	1921.	1920.	1919.
Jan. ...	14.30	12.96	12.61	18.81	18.48
Feb. ...	15.15	12.61	12.45	18.21	16.45
Mar. ...	16.64	12.54	11.83	18.11	14.82
April ..	16.60	12.46	11.82	18.40	15.06
May ...	15.45	12.84	12.24	18.16	15.49
June ...	14.57	13.33	12.08	17.65	17.17
July ...	14.30	13.34	11.68	18.12	21.10
Aug. ...	13.81	13.43	11.43	18.00	21.71
Sept. ...	.....	13.39	11.75	17.76	21.28
Oct.	.....	13.39	12.43	16.01	20.66
Nov. ...	.....	13.40	12.53	14.12	19.37
Dec. ...	.....	13.81	12.97	13.12	18.21
Average	.....	13.13	12.15	17.21	18.32

Annual Averages.

1918	24.68	1914	13.18
1917	27.64	1913	15.33
1916	26.51	1912	16.29
1915	16.76	1911	12.42

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of the year. The unsettled conditions abroad have also been a depressing factor but notwithstanding the unfavorable political and industrial situation in Europe foreign consumers have been taking a surprisingly large amount of American copper. At the beginning of September there are indications that a more favorable sentiment is developing which will doubtless find expression in the markets here and abroad in the next month.

COPPER AND BRASS PRODUCTS.

Shipments against contracts for rolled, drawn and cast copper, brass and bronze products continued quite active throughout August. At the same time current business was light, the downward tendency of prices keeping buyers extremely conservative. As a net result of continued heavy shipments and small orders there was a heavy reduction in unfilled orders on the books of most of the large independent manufacturers as well as in those of the American Brass Company. Even so business still on the books of most of the large manufacturers is sufficient to keep plants busy at probably an average rate of 80% of capacity well into the last quarter of the year.

Several large consumers came into the market for bare wire. The largest inquiries were from the Western Union and the Postal Telegraph Companies. Keen competition for this business developed and was partially responsible for the lower prices which were current. These large orders were placed but were exceptional as the bulk of the business was confined to small lots of both drawn and rolled products.

The drooping market for unwrought copper was reflected in a further decline of prices for finished materials. On August 8th the American Brass Company announced a reduction of ½c to 1c a pound on various products effective at the close of business August 7th. On copper wire and rods the American Brass Company receded only ¼c a pound early in the month but other manufacturers made greater concessions and the largest interest receded another half cent a pound on wire on August 22nd.

Both revisions in prices during August were in response to lower prices for unwrought copper. The changes made

BRASS AND COPPER PRODUCTS.

The last two price lists issued follow:

COPPER PRODUCTS.

	Aug. 7	Aug. 22
Sheet copper	22¾	22¼
Copper bottoms	31¼	30¾
Copper in rolls	21¼	20¼
Brush copper	23¾	23¼
Sawed copper	23½	23
Drawn copper shapes	21¼	20¾
Commutator copper	22½	22

BRASS PRODUCTS.

Sheet Metal.

High brass	19	18½
Low brass	20¾	20¼
Rich low brass	21¼	20¾
Commercial bronze and gilding	22½	22
Best spring drawing and spinning brass	20	19½

Wire.

High brass	19½	19
Low brass	21¼	20¾
Commercial bronze and gilding	23	22½
Best spring and brazing brass	20½	20

Rods.

High brass (free turning)	17¼	16¾
Low brass	21¼	21
Commercial bronze	23¼	22¾

Brazed Tubes.

Brass	27	26½
Copper and commercial bronze	32¼	31¾
Open seam brass	27	26½
Open seam copper and commercial bronze	32¼	31¾

Seamless Tubes.

High brass	24½	24
Low brass	26½	26
Commercial bronze	27½	27
Copper	26	25½

NICKEL SILVER.

10% grade A sheet metal	26¼	26
15% " " " "	27¾	27½
18% " " " "	28¾	28½
25% " " " "	39	38¾
5% grade B sheet metal	24¼	24
10% " " " "	25¾	25½
12% " " " "	26½	26¼
15% " " " "	27¼	27
18% " " " "	28¼	28
25% " " " "	38¾	38½
5% wire and rod	26¼	26
10% " " "	29¼	29
12% " " "	30¾	30½
15% " " "	32¾	32½
18% " " "	35¾	35½

August 7th included a drop of 1c a pound on copper sheets, rolls, bottoms and round rods; ¾c on high and low brass wire, rods and sheets; ⅞c a pound on bronze sheets, wire and rods; ¾c on tobin bronze rods and sheets; ¾c on brazed brass tubing; ⅞c on copper and commercial bronze brazed tubing and 1c a pound on seamless brass, copper and bronze tubing. Other manufacturers reduced yellow metal products ¾c a pound.

The second revision in prices, which became effective on the night of August 22nd, was announced August 23rd when the American Brass Company receded ½c a pound on the prices of rolled and drawn copper, brass and bronze products. The one exception was copper in rolls upon which the reduction was 1c a pound. Nickel silver and yellow metal sheets and rods were also reduced ½c a pound. The price of black copper rods, from which wire is drawn, was also revised downward, while finished copper rods were held at 17.12½c a lb. Independent manufacturers concurred in readjustment of prices to the lower level. There was considerable variation in prices quoted on black copper rods as well as on copper wire for which orders there was active competition, but on most finished products manufacturers were on practically the same level.

Cable manufacturers have been especially well provided with orders in the last six months and there now is a possibility that there will be some replacing of orders as a result of the Japanese earthquake disaster which, it is understood, seriously affected cable manufacturing plants in the stricken earthquake area, but the largest Japanese copper consuming plants are located in the vicinity of Kobe and were therefore not damaged.

At the end of August the market for practically all finished products was dull and the outlook was not encouraging for any great improvement in demand in the near future. At the same time there is usually a quickening of trade in the Fall and this year is not likely to be exceptional in this respect although a very conservative feeling was still evident among consumers when the month closed.

ZINC IN AUGUST

The principal feature of interest in zinc during August was the renewal of European buying in our market.

The price on the London Metal Exchange reached £32.12s 6d on August 22nd. Immediate supplies abroad had become scarce. Belgium having but little to spare before October, and the English galvanizing trade became active, owing to orders from India. It is estimated that about 8,000 tons were bought in this market mostly for early shipment.

The rise abroad had received some impulse from the uncertain labor situation at the smelters in this country. Most of the Western plants posted a notice of a 10% reduction in wages effective August 17th, and the acceptance of this for a time was problematical. However, the workmen at all but three plants of lesser rank, accepted the reduction. At these three points the smelters closed down, and there was a further loss of output during the month by riotous interference with the workers at the American Zinc, Lead & Smelting Company's plant at Hillsboro. The total reduction in production from these sources is estimated at about 500 tons per week.

LEAD AND ZINC PRICES IN AUGUST

Day	LEAD						ZINC					
	New York *		St. Louis †	London †			New York		St. Louis §	London		
				£	s	d				£	s	d
1	6.50		6.62½ 6.62½	24	7	6	6.60		6.25	31	7	6
2	6.50		6.62½ 6.62½	24	2	6	6.55		6.20	30	17	6
3	6.50		....	24	0	0	....		....	31	5	0
4	6.50		6.62½ 6.62½	.....			....		....	.....		
6	6.50		6.62½ 6.55	.....			6.50		6.15	.....		
7	6.50		6.60 6.50	24	0	0	6.52½		6.17½	31	5	0
8	6.50		6.60 6.45	24	2	6	6.50		6.15	31	12	6
9	6.50		6.60 6.42½	24	2	6	6.52½		6.17½	31	12	6
10	6.50		....	24	0	0	....		....	31	10	0
11	6.50		6.60 6.42½	.....			....		....	.....		
13	6.50		6.60 6.42½	24	2	6	6.60		6.25	31	10	0
14	6.50		6.60 6.42½	24	0	0	6.60		6.25	31	15	0
15	6.50		6.60 6.42½	23	17	6	6.65		6.30	31	17	6
16	6.50		6.60 6.40	23	15	0	6.70		6.35	32	2	6
17	6.50		6.60 6.42½	24	0	0	6.80		6.45	32	15	0
18	6.50		6.60 6.42½	.....			....		....	.....		
20	6.50		6.60 6.45	24	0	0	6.80		6.45	33	5	0
21	6.50		6.60 6.45	24	2	6	6.82½		6.47½	33	7	6
22	6.50		6.60 6.45	24	7	6	6.85		6.50	33	12	6
23	6.50		6.60 6.50	24	7	6	**6.85**		**6.50**	**33**	**12**	**6**
24	6.50		6.60 6.50	24	7	6	6.85		6.50	33	7	6
25	6.50		6.60 6.50	.....			....		....	.....		
27	6.75		6.80 6.65	24	7	6	6.77½		6.42½	32	12	6
28	....		6.80 6.65	24	12	6	6.77½		6.42½	33	0	0
29	6.75		6.80 6.65	24	12	6	6.77½		6.42½	33	2	6
30	6.75		6.80 6.65	24	15	0	6.77½		6.42½	33	10	0
31	6.75		6.80 6.67½	24	15	0	6.77½		6.42½	33	10	0
High	6.75		6.85 6.70	24	15	0	6.87½		6.52½	33	12	6
Low	6.50		6.50 6.37½	23	15	0	6.47½		6.12½	30	17	6
Av..	6.55		6.64 6.51	24	4	5	6.70		6.35	32	7	9

* A. S. & R. price.
† Outside market. § Prime Western.

Throughout the month the position of the zinc ore market remained very strong, prices advancing at the close to around $40.00 per ton. The limitation of ore production by the cutting out of night shifts and cessation on Saturdays was steadily adhered to, and though ore purchases by the smelters were constantly less than the amount consumed by them, their total purchases were greater than the ore output. The base cost to the smelter with ore at $40.00, is estimated at close to 6.50c E. St. Louis basis.

The demand from domestic consumers through August was light,—and prior to the entry of foreign buying, the price had sagged to 6.15c E. St. Louis basis, the recovery later being due to the combined influences of labor uncertainty, ore prices and export.

The month closed with a strong tone.

PRIME WESTERN ZINC PRICES.

Average Prices, East St. Louis Basis.

	1923	1922	1921	1920	1919	1918
Jan. .	6.96	4.71	5.44	9.22	7.12	7.71
Feb. .	7.25	4.50	4.95	8.82	6.37	7.73
Mar. .	7.87	4.65	4.73	8.62	6.18	7.42
Apr. .	7.32	4.91	4.75	8.26	6.16	6.81
May .	6.72	5.10	4.86	7.72	6.11	7.14
June .	6.05	5.35	4.44	7.58	6.57	7.85
July .	6.09	5.77	4.27	7.82	7.56	8.43
Aug. .	6.35	6.24	4.19	7.95	7.50	8.73
Sept. .	....	6.56	4.25	7.77	7.20	9.31
Oct. .	....	6.85	4.61	7.25	7.49	8.77
Nov. .	....	7.14	4.68	6.37	7.83	8.39
Dec. .	....	7.12	4.85	5.84	8.40	8.21
Av. ..	....	5.74	4.67	7.77	7.04	8.04

Annual Averages.

1917.....	8.93	1912.....	6.93
1916.....	13.57	1911.....	5.70
1915.....	14.16	1910.....	5.42
1914.....	5.11	1909.....	5.39
1913.....	5.61	1908.....	4.62

WATERBURY ZINC AVERAGES.

	1923	1922	1921	1920	1919	1918
Jan. ..	8.00	5.25	6.05	9.75	9.00	9.60
Feb. ..	8.00	5.00	5.50	9.40	8.10	9.60
Mar. ..	8.70	5.10	5.25	9.15	8.00	9.40
Apr. ..	8.25	5.40	5.20	8.85	6.90	8.50
May ..	7.60	5.55	5.30	8.30	6.80	8.95
June .	7.00	5.85	5.00	8.15	7.25	9.50
July ..	6.80	6.20	4.80	8.45	8.10	10.30
Aug. ..	7.10	6.50	4.70	8.55	8.15	10.45
Sept. .	....	7.10	4.75	8.45	7.85	11.20
Oct. ..	....	7.65	5.10	7.50	8.15	10.60
Nov. ..	....	7.90	5.15	7.00	8.55	10.20
Dec. ..	....	7.90	5.30	6.40	9.05	10.00
Av. ...	....	6.28	5.17½	8.33	8.00	9.86

JOPLIN ZINC AND LEAD ORE

Review for August 1923.

JOPLIN, Mo., August 30.—Shipments of zinc ore for the month of August totaled 43,067 tons, which compared with 29,479 tons for the same period last. Prices during the month ranged from $37.00 at the beginning of the month to $40.00 at the end of the month, the average price for the month being $38.34. This compares with an average price of $36.25 for the month of August 1922. The total value of zinc ore shipped from the district aggregated $1,651,572.

Shipments of lead ore aggregated 4,078 tons which compares with 5,803 for August 1922.

Prices for lead ore ranged from $75.00 to $80.00, $80.00 being paid the last two weeks of the month. The average price for the month was $78.76, which compares with $79.27 for the same period last year. The total value of lead ore shipped during the month amounted to $321,233.

It is estimated that there is approximately 50,000 tons of unsold surplus zinc now held in the bins of the ore pro-

U. S. ZINC STATISTICS.

From the monthly reports of the American Zinc Institute, in tons of 2,000 lbs.

	Production		Deliveries	
	1923.	1922.	1923.	1922.
Jan. ..	23,706	25,916	24,636	21,021
Feb. ..	42,443	22,513	48,153	24,067
Mar. ..	48,731	26,532	49,574	30,394
April .	46,866	25,506	47,911	34,040
May ..	47,347	27,419	43,304	38,738
June ..	42,840	28,547	38,686	39,380
July ...	43,065	31,917	38,998	32,875
Aug. ..	.....	31,423	.....	38,412
Sept. ..	.....	33,134	.....	35,957
Oct. ..	.....	39,940	.....	40,703
Nov. ..	.....	40,200	.....	38,746
Dec. ..	.....	42,841	.....	44,086
Total	.....	373,678	.....	422,034

	Stocks at Smelters*		Retorts in Operation*	
	1923.	1922.	1923.	1922.
Jan. ..	16,574	65,678	84,131	44,457
Feb. ..	10,864	64,124	86,931	43,357
Mar. ..	10,021	60,262	89,054	45,373
April .	8,976	51,728	89,203	42,773
May ..	13,019	40,409	86,731	48,765
June ..	17,173	29,576	84,455	52,677
July ..	21,240	28,618	82,075	54,909
Aug. ..	.....	21,629	.....	57,193
Sept. ..	.....	18,806	.....	65,936
Oct. ..	.....	18,043	.....	72,116
Nov. ..	.....	19,947	.....	75,664
Dec. ..	.....	18,252	.....	80,863

* At the end of month.

ducers, which is approximately the same amount that was carried this time last year. There is practically no surplus of lead.

Lack of water supply in the Tri-State field is augmenting the curtailment of production brought about by the five-day week plan. Several properties have been forced to close down from lack of water and other properties will have to close down unless the drought is broken shortly.

The Quapaw Mining Company started draining the Quapaw section of the field the latter part of the month. This company is owned by the Charles Schwab interests and they have under lease 2,320 acres of land.

The mill of Keltner Mining Company was completely destroyed by fire of unknown origin the last week of the month. This plant was valued at $153,000.

SHEET ZINC IN AUGUST

An advance of 35c per hundred pounds was made in the price of sheet zinc by one of the largest manufacturers August 18th and became effective on the same day, the price being 9.25c per pound f.o.b. manufacturer's plant. The rise in price was because of the higher prices prevailing for zinc ore. Other manufacturers in the last half of the month also adjusted to the higher selling level.

TIN IN AUGUST

The tin market which in July had shown resistance to the steady reaction in prices that had been going on more or less since last March, made in August a definite move to higher prices.

Opening at 38.37½c the market was dull and prices irregular on the fears of what effect the death of President Harding would have on the business situation, and the market declined to 38.00c. But these fears proved to be unjustified, and by August 9th the market advanced to 39.00c. On the following day the London market weakened on easiness regarding the political situation in Europe and the news that the German Government would continue passive resistance of the Ruhr, and prices declined to 38.12½c which proved to be the lowest point for the month. At these lower prices a fairly good business was done and prices were back again to 39.00c by August 15th, thereafter steadily advancing to 40.87½c by August 30th which was the highest price for the month, the close being at a shade easier than 40.62½c. The total advance for August was 2¼c, and the month closed with every indication that September would see continued improvement in American buying, and if so, the statistical position is so favorable that a further advance seems to be promised for September.

The statistics for August show a decrease in the visible supply on September 1st of 1,265 tons for the month. This was the result of good American deliveries for August (5,510 tons) making the total deliveries for the first eight months of this year 48,479 tons as compared with 38,125 tons during the same period last year. This increase in American consumption this year of over 10,000 tons is far the most important factor in the tin situation and apparently it has not resulted in any material increase in consumers' stocks. The sale and output of products in which tin enters has been very large this year by reason of the big increase in the tin plate and canning demand, the new record made in automobile production, and good business in solder and other lines consuming tin. The prospects are favorable for a continued large American consumption during the balance of the year. The opening of the tin plate order books for next season at unchanged prices has caused large orders to go automatically on the books of the tin plate mills.

TIN PRICES IN AUGUST

Day	New York Straits	99%.	London Stand. £ s. d.	Straits. £ s. d.	Singapore Straits. £ s. d.
1	38.37½	37.87½	183 15 0	187 5 0	189 0
2	38.12½	37.62½	182 5 0	185 15 0	189 0
3	.....	.....	181 7 6	184 17 6	188 10
6	38.12½	37.62½	.....	.....	.....
7	38.37½	37.87½	181 15 0	185 5 0	188 0
8	38.87½	38.37½	184 10 0	188 0 0	188 7
9	38.87½	38.50	184 15 0	188 5 0	189 15
10	.....	.....	183 15 0	187 5 0	189 10
13	38.25	37.87½	182 5 0	185 15 0	187 5
14	38.37½	37.87½	183 0 0	186 10 0	188 0
15	39.00	38.50	184 0 0	187 10 0	188 0
16	39.25	38.62½	184 12 6	188 2 6	189 15
17	39.25	38.62½	185 0 0	188 10 0	189 10
20	39.50	38.87½	186 0 0	189 10 0	190 0
21	39.50	39.00	187 0 0	190 10 0	191 0 0
22	40.00	39.50	190 10 0	194 0 0	192 0 0
23	40.12½	39.50	191 0 0	194 15 0	195 5 0
24	39.87½	39.37½	189 15 0	193 10 0	194 15
27	40.37½	39.75	190 12 6	194 12 6	195 0 0
28	40.62½	40.12½	192 15 0	196 15 0	195 10 0
29	40.75	40.25	193 5 0	197 5 0	199 10 0
30	40.87½	40.37½	193 17 6	197 17 6	199 10 0
31	40.62½	40.00	191 15 0	195 15 0	199 0 0
High .	40.87½	40.37½	193 17 6	197 17 6	199 10 0
Low .	38.12½	37.62½	181 7 6	184 17 6	187 5 0
Av'ge	39.39	38.86	186 14 1	190 6 10	191 12 10

MONTHLY TIN STATISTICS

As published by the New York Metal Exchange in tons of 2,240 pounds:

	Aug. 1923.	July 1923.	Aug. 1922.
Supplies—			
Straits	5,190	5,025	5,308
Australian	95	35	81
Banka and Billiton	1,196	1,129	1,583
Chinese	632	454	1,771
Standard	836	859	251
	7,949	7,502	8,994
Deliveries—			
U. K. all kinds	1,538	1,006	1,921
U. S. A. all kinds	5,510	5,305	4,150
Continent, all kinds	2,166	2,469	1,052
	9,214	8,780	7,123
Decrease in total visible supply	1,265	1,278	*1,871
Stocks—			
U. K. all kinds	4,001	4,131	7,074
U. S. A. all kinds	2,887	2,037	2,806
Continent, all kinds	2,116	2,200	2,651
	9,004	8,368	12,531
Afloat—			
U. K. all kinds	1,170	1,846	1,974
U. S. A. all kinds	7,210	7,937	8,361
Continent, all kinds	1,370	1,868	2,376
	9,750	11,651	12,711
Tot. visible supply	18,754	20,019	25,242

* Increase.

STRAITS TIN PRICES.

Average prices of Straits tin for prompt delivery in New York.

	1923.	1922	1921.	1920.	1919.
Jan.	39.17	32.11	36.11	62.89	72.50
Feb.	42.03	30.82	32.47	60.00	72.00
Mar.	48.65	29.17	28.85	61.99	71.75
April	45.87	30.65	30.41	62.20	72.26
May	43.16	30.97	32.52	55.07	71.94
June	41.00	31.54	29.57	48.62	71.20
July	38.48	31.82	27.69	49.37	70.39
Aug.	39.39	32.43	26.40	47.69	63.78
Sept.	.....	32.40	26.73	44.62	55.81
Oct.	.....	34.64	27.74	40.64	55.62
Nov.	.....	36.72	29.02	37.02	54.17
Dec.	.....	37.68	32.49	34.15	55.06
Average	.....	32.58	30.00	50.36	65.54

Yearly Averages.

1919	65.54	1914	35.70
1918	86.80	1913	44.32
1917	61.65	1912	46.43
1916	43.48	1911	42.68
1915	38.66	1910	34.27

TIN DELIVERIES IN UNITED STATES

Monthly deliveries of tin in United States, exclusive of domestic refined tin, in tons of 2,240 pounds.

	†1923.	1922.	1921.	1920.	1919.
Jan.	6,625	4,275	1,555	3,910	1,850
Feb.	6,185	3,215	1,585	5,200	2,450
Mar.	6,634	6,030	1,683	5,130	2,070
April	6,775	4,995	1,590	3,305	36
May	6,035	4,740	1,225	3,550	20
June	5,410	5,130	1,590	6,500	68
July	5,305	4,590	1,525	5,530	132
Aug.	5,510	4,150	3,320	3,745	4,345
Sept.	.....	5,050	2,605	4,860	4,825
Oct.	.....	5,603	2,280	3,415	2,875
Nov.	.....	4,812	3,250	3,395	6,665
Dec.	.....	4,870	3,710	2,580	6,965
Total	.....	57,460	25,918	51,120	32,301

VISIBLE SUPPLY OF TIN

World's visible supply of tin at end of each month in tons of 2,240 pounds.

	†1923.	1922.	1921.	1920.
Jan.	25,765	26,216	18,994	21,056
Feb	25,157	25,047	17,074	21,586
Mar.	24,622	22,353	16,073	18,305
April	22,116	22,017	15,670	19,342
May	22,187	22,910	18,352	20,976
June	21,297	23,566	17,968	18,851
July	20,019	21,502	20,316	18,546
Aug.	18,754	24,176*	19,358	19,858
Sept.	.....	22,879*	21,189	18,996
Oct.	.....	22,902	23,349	19,964
Nov.	.....	25,286	22,806	19,823
Dec.	.....	24,930	25,220	19,410
Average	.....	23,649	19,697	19,726

* Includes current shipments of Banka and Chinese to U. S.

Annual Averages.

1919	12,890	1914	14,907
1918	13,894	1913	12,377
1917	18,803	1912	13,207
1916	18,585	1911	16,404
1915	15,208	1910	18,815

TIN SHIPMENTS FROM STRAITS

(Tons of 2,240 lbs.)

	†1923.	1922.	1921.	1920.	1919.
Jan.	6,255	5,515	1,055	3,910	3,340
Feb.	4,655	3,640	240	4,810	2,860
Mar.	6,020	4,985	915	2,795	2,254
April	4,490	5,350	1,800	3,872	1,127
May	5,535	6,420	3,667	4,930	1,704
June	5,390	6,505	1,425	4,261	1,629
July	5,025	4,035	3,975	3,865	7,302
Aug.	5,190	5,855	5,165	3,798	8,829
Sept.	.....	4,050	5,300	4,529	5,465
Oct.	.....	5,650	4,525	3,340	4,431
Nov.	.....	6,145	4,065	2,630	4,135
Dec.	.....	4,655	5,920	2,225	6,677
Total	.....	62,785	36,052	44,965	49,763

Annual Totals

1918	*55,000	1914	63,093
1917	62,366	1913	62,550
1916	61,587	1912	59,318
1915	66,517	1911	55,470

† **Note — London Metal Exchange statistics.** * Estimated.

The production of tin in the World has not increased this year, and at present prices shows no signs of increasing. The Dutch Government has taken advantage of the agreement made to sell 5% of their surplus stocks each month, but the Malay Government has held back their selling, evidently believing in higher prices and for that reason probably can sell 15% of their surplus stocks and are likely to do so if the market advances.

A feature of the month has been the indisposition of the Straits producers to make sales at the present basis evidently expecting a better market later. When prices improve sales from this quarter promise to show an increase.

Another feature has been the scarcity of American refined and 99% tin. This is quite natural inasmuch as the American tin refineries stopped operations at the end of July and the supplies from this source which had been averaging 600 or 700 tons a month, are no longer available from our American refineries. Bolivian concentrates formerly refined here will now be refined in England and the production imported. The reason for the change in the place of smelting has been on account of the increased cost in this country, labor, etc., as compared with England.

The following table is interesting as showing the recovery of tin consumption on the Continent of Europe since the demoralization of 1920 and early 1921.

Continental deliveries in periods of six months.

	Tons.	Rate Per annnum Tons.
First half 1920 ..	3,517	7,000
Second half 1920 .	2,244	4,500
First half 1921 ..	3.529	7.000
Second half 1921 .	6,067	12,000
First half 1922 ..	5,032	10,000
Second half 1922 .	7,777	15,500
First half 1923 ..	7,371	14,700
Jan.-July 1923 ...	9,511	16,300

And in addition to the above larger quantities of Bolivian are going to Germany, although it is difficult to give the exact figures.

LEAD IN AUGUST

The month opened with the American Smelting & Refining Company's contract basis price at 6.50c New York, and the outside western market at 6.62½c E. St. Louis basis.

On August 27th the American Smelting & Refining Company's price was advanced to 6.75c New York.

Throughout the greater part of the month the market was quiet, but maintained a very steady tone due to the fact that stocks were small, most of the producers having little or no accumulation.

The fact that despite the dullness of July and August, so little excess had developed is an indication that production has recently correspondingly diminished. The Fall season starts with a fairly healthy statistical position.

In the last week of August a much improved demand from consumers ensued, which led to the advance before referred to, and prospects for the coming season business in most lead consuming lines brightened considerably.

The foreign market held steady throughout August, with little fluctuation, at around £24, advancing towards the close to £24 15s. Under the duty of 2.12½c per pound, the cost of import was around 7.00c per pound, and therefore, out of competition with the domestic price.

LEAD PRICES, ST. LOUIS.

Average Prices, East St. Louis Basis.

	1923.	1922.	1921.	1920.	1919.
Jan. ...	7.64	4.40	4.78	8.32	5.36
Feb. ...	8.16	4.40	4.29	8.62	4.83
Mar. ..	8.33	4.43	4.03	8.93	5.01
April ..	8.03	4.97	4.30	8.71	4.87
May ...	7.12	5.30	4.82	8.52	4.80
June ...	6.88	5.58	4.34	8.36	5.06
July ...	6.13	5.45	4.28	8.58	5.42
Aug. ...	6.51	5.55	4.23	8.89	5.60
Sept. ..	....	5.90	4.41	8.23	5.81
Oct.	....	6.36	4.47	7.08	6.22
Nov. ...	....	6.88	4.38	6.16	6.68
Dec. ...	....	6.99	4.40	4.75	6.96
Year ...	....	5.52	4.39	7.93	5.55

Annual Averages

1918	7.25	1913	4.26
1917	8.92	1912	4.38
1916	6.80	1911	4.31
1915	4.57	1910	4.33
1914	3.74	1909	4.10

NICKEL IN AUGUST

Business in nickel ingots continued light throughout August. Larger shipments were made against contracts but with increased output the tendency was toward an accumulation of supplies in the hands of producers both in the United States and in Canada. The tone of the market, therefore, was somewhat easier and small lots continued to be nominally quoted at 29.00c to 30.00c a pound. Most of the large manufacturers of aluminum are reported to have practically caught up with shipments against contracts in which they were in arrears during the first half of the year.

LEAD PRICE CHANGES.

The American Smelting & Refining Company's changes in the base price of lead since the beginning of 1922 are given below:

1922—		1923—	
Opening	4.70	Jan. 9	7.40
Mar. 30	4.80	" 10	7.50
April 3	4.90	" 22	7.75
" 7	5.00	" 23	8.00
" 20	5.10	Feb. 23	8.10
" 24	5.25	Mar. 1	8.15
May 16	5.35	" 2	8.25
" 18	5.50	April 19	8.00
" 29	5.65	" 28	7.75
June 7	5.75	May 3	7.50
Aug. 21	5.90	" 9	7.25
Sept. 14	6.00	June 21	7.00
" 19	6.10	July 2	6.65
" 22	6.25	" 3	6.50
" 27	6.35	" 5	6.35
Oct. 6	6.50	" 6	6.25
Nov. 1	6.75	" 9	6.10
" 2	7.00	" 10	6.00
" 24	7.10	" 23	6.25
Dec. 19	7.25	" 27	6.50
		Aug. 27	6.75

LEAD AND ZINC PIGMENTS IN 1922

The quantity of both lead and zinc pigments marketed in 1922 showed quite a considerable increase according to the statistics compiled by the U. S. Geological Survey. The figures for the two years are given below:

Lead Pigments and Salts.

	1921			1922		
	Short tons.	Value. Total.	Per ton.	Short tons.	Value. Total.	Per ton.
Sublimed lead, or basic lead sulphate:						
White	11,568	$1,418,403	$122.61	13,765	$1,829,865	$132.94
Blue	463	58,593	126.55	972	129,230	132.95
Red lead	21,805	3,414,452	156.59	30,509	5,104,290	167.30
Orange mineral	381	91,887	241.17	370	83,022	224.38
Litharge	41,909	5,735,824	136.86	58,261	8,892,172	152.63
White lead:						
Dry	26,738	3,755,418	140.45	41,598	5,785,165	139.07
In oil	143,545	27,505,145	191.61	153,393	29,728,230	193.80
Lead acetate	2,092	552,435	264.07	(a)	(a)	(a)
Lead arsenate	5,733	2,090,341	364.62	(a)	(a)	(a)

(a) Statistics for lead arsenate and lead acetate collected biennially by the Bureau of the Census.

Zinc Pigments and Salts.

	1921			1922		
	Short tons.	Value. Total.	Per ton.	Short tons.	Value. Total	Per ton.
Zinc oxide	74,329	$11,231,716	$151.11	128,465	$17,994,704	$140.07
Leaded zinc oxide	16,103	2,092,320	129.93	19,613	2,251,601	114.80
Lithopone	55,016	6,681,563	121.45	83,360	9,214,040	110.53
Zinc chloride, 50° Baume	59,457	3,552,619	59.75	41,627	2,009,147	48.27
Zinc sulphate	3,295	189,369	57.47	5,078	251,528	49.53

ANTIMONY IN AUGUST

The advance which in July had carried the market up to 7.75c duty paid New York went slightly further in the early part of August, but culminated at 7.87½c. At no time during the advance was there any considerable amount of support in the shape of consuming buying, but the Chinese market was reported strong owing to European buying and small available stocks, and for a time the price ruled steady at the point reached.

But even speculative buying interest, lacking encouragement from consuming orders, had ceased and a dull condition ensued. Toward the latter part of August lower offerings began to come from China, but for the most part failed of ready acceptance, and though the prices named were successively at fractionally lower levels, the effect was apparently only to increase buyers' distrust of the market.

The lowest figure reported from China at the close of August was 5.35c c.i.f. New York in bond for September-December shipment. The spot New York price simultaneously receded to 7.50c duty paid, but the month ended with little demand in evidence for either spot or future delivery.

The imports of antimony regulus (metal) during the first six months of this year were 2,951 tons, as against 3,408 tons for the same period in 1922.

ANTIMONY PRICES.

Prices for Chinese and Japanese antimony (ordinary grades) in New York.

	1923	1922	1921	1920	1919	1918
Jan.	6.81	4.45	5.22	10.53	7.59	14.23
Feb.	7.20	4.38	5.23	11.55	7.24	13.67
Mar.	8.75	4.25	5.30	10.97	6.83	13.12
April	8.38	4.88	5.15	10.45	6.82	12.52
May	7.43	5.42	5.25	9.44	7.56	12.41
June	6.84	5.13	5.06	7.93	8.37	12.99
July	7.05	5.08	4.68	7.43	8.81	13.18
Aug.	7.67	5.29	4.55	7.04	8.92	13.81
Sept.	....	6.43	4.53	7.10	8.53	13.93
Oct.	....	6.80	4.94	6.62	8.60	13.44
Nov.	....	6.54	4.66	6.05	9.06	9.10
Dec.	....	6.35	4.51	5.46	9.56	8.19
Av.	....	5.42	4.92	8.38	8.16	12.55

Annual Averages.

1917	20.73	1913	7.43
1916	25.33	1912	7.68
1915	29.52	1911	7.48
1914	8.53	1910	7.27

The imports for the last four years were as follows:

1922	7,963 tons (2,240 lbs.)
1921	9,443 tons
1920	11,137 tons
1919	6,361 tons

QUICKSILVER IN AUGUST

There was quite an upheaval in the local market for quicksilver in August. At times the trade was demoralized and fluctuations in prices were wide. In the New York market prices dropped from $6.00 to $8.00 per flask. The main cause of the chaotic market was the free offering of supplies from Spain where there had been an unexpected heavy accumulation. Color manufacturers and furriers were the principal large domestic consumers who took advantage of the low prices prevailing but speculators and dealers were probably the most important factors in the market. About the end of August some round lots were sold at $58.00 a flask whereas at the end of July sales had been made between $65.00 and $66.00 per flask in 25-flask lots. Mercurial manufacturers are credited with having purchased 300 to 400 flasks and resold in small lots for shipment to the south and the interior.

Importations in August are understood to have been quite heavy but Government statistics are not yet available. Considerable metal is understood to be still afloat although a large proportion of that coming in has been sold. Some of the afloat supply, however, may be resold. When the month closed a slightly better tone prevailed and today 25-flask lots were sold at $60.00 and small lots at $61.00 to $62.00 per flask.

Continental Europe, as well as America, is understood to have purchased quite heavily of Spanish quicksilver during the month. Some substantial sales were made also for shipment to the Orient. It is notable that the principal source of accumulation in the Orient is at Yokohama and it is understood that warehouses at that point have been destroyed. If this proves to be true dealers here anticipate a decided recovery in quicksilver prices soon.

ALUMINUM IN AUGUST

The Aluminum Company of America, it now seems well established, has been making the market for ingots as well as for finished aluminum products in the last two months. Orders have been taken for ingots at 25c a pound by the large producer and practically all consumers have covered their requirements at this level for this year's shipment.

Under the circumstances the resale lots that have been offered from surplus stocks in central west have been sold at close to this price. In the local market too at this point it would be difficult to realize over 25.00c to 26.00c a pound for 98% to 99% virgin.

Importers of foreign aluminum continued to ask 27.00c delivered for ingots, that is, 99% plus and 26.50c for 98% to 99% grade. These prices, however, do little more than protect consumers who have bought on contracts as it would be practically impossible to realize such prices on new sales. The demand, however, is so light that there is not enough trading to establish a reliable local market.

Remelted aluminum developed considerable weakness with offerings of some lots as low as 23.00c for which the demand was light. At the close of the month remelted 98% to 99% was difficult to sell at 23.00c to 24.00c and No. 12 alloy at 21.00c to 22.00c per pound delivered.

ALUMINUM PRICES.

Open market quotations on virgin aluminum 98-99% pure, in New York.

	1923.	1922.	1921.	1920.	1919.
Jan. ...	22.75	17.74	22.86	32.00	33.10
Feb. ...	23.25	17.33	24.50	31.83	32.26
Mar. ...	24.95	17.52	23.44	31.50	29.81
Apr. ...	26.00	18.06	23.25	31.61	30.67
May ...	26.24	17.92	23.06	31.95	32.21
June ...	26.25	17.87	22.75	32.00	32.83
July ...	26.25	17.87	22.62	32.00	32.57
Aug. ...	26.07	17.87	20.22	32.21	32.23
Aug. ...	.....	17.87	20.22	32.21	32.23
Sept. ...	.....	18.26	19.02	31.44	32.50
Oct.	.....	20.51	17.85	29.12	32.50
Nov. ...	.....	21.66	17.50	27.80	32.50
Dec. ...	.....	22.52	17.50	23.83	32.48
Av.	.....	18.68	21.21	30.61	32.14

PLATINUM IN AUGUST

The official price for refined platinum in August continued $116.00 an ounce but this price was not fully sustained as most of the small business done was at concessions of $1.00 to $2.00 an ounce. The differentials in price between soft and other grades was unchanged but with concessions in soft the easier feeling was also reflected in hard and medium grades. No. 12 medium was nominally quotable at $123.00 to $125.00 an ounce and hard at $132.00 to $134.00 an ounce, the outside prices being the nominal official asking prices. The supply was fully ample to meet the light demand and probably there was some accumulation in refiners' hands.

Importations of crude platinum continued ample. It is doubtful that refiners would pay over $110 an ounce but in the general dullnes and absence of important business prices were largely nominal.

Few sales of palladium were reported but for small lots prices continued nominally unchanged at $79.00 to $81.00 an ounce. Iridium continued quiet but steady with holders still asking $295.00 to $300.00 an ounce.

ALUMINUM, ANTIMONY, SILVER AND STERLING EXCHANGE QUOTATIONS IN AUGUST

Day	Aluminum	Antimony	Silver — N. Y.	Silver — London.	Sterling Exch.
1	26.25	7.75	.625/8	30 7/8	$4.56 3/4
2	26.25	7.75	.623/4	30 5/8	4.56 5/8
3	....	....	.623/4	30 1/8	4.56 5/8
4	....	....	.625/8	30 7/8	....
6	26.25	7.65	.625/8	....	4.56 5/8
7	26.25	7.65	.623/4	31	4.56 1/4
8	26.25	7.75	.625/8	30 5/8	4.56 1/2
9	26.25	7.75	.623/4	30 5/8	4.56 5/8
10	....	....	.623/4	31	....
11	....	....	.63	31 1/8	....
13	26.25	7.87 1/2	.63 3/8	31 1/16	4.56 7/8
14	26.25	7.87 1/2	.63 1/4	31 1/16	4.56 7/8
15	26.25	7.87 1/2	.63 1/8	31 1/16	4.56 3/4
16	26.25	7.75	.63 1/8	31 1/16	4.56 7/8
17	26.25	7.75	.627/8	30 3/4	4.56 5/8
18	....	....	.627/8	31	....
20	26.25	7.62 1/2	.63	31 1/16	4.55 1/2
21	26.25	7.62 1/2	.627/8	31	4.55 1/8
22	26.25	7.60	.623/4	30 3/4	4.55 1/8
23	26.25	7.60	.62 1/2	30 5/8	4.55 3/8
24	26.25	7.60	.62 1/4	30 3/4	4.55 1/2
25	....	....	.625/8	30 1/8	....
27	25.50	7.55	.625/8	30 1/16	4.54 1/2
28	25.50	7.55	.62 1/2	30 7/8	4.54 1/2
29	25.50	7.55	.627/8	30 7/8	4.54 5/8
30	25.50	7.50	.623/4	30 7/8	4.54 7/8
31	25.50	7.50	.623/4	30 1/8	4.54 1/2
High .	26.50	7.80	.63 1/4	31 1/8	4.56 7/8
Low ..	25.00	7.50	.62 1/4	30 5/8	4.54 1/2
Av'ge.	26.07	7.67	.6278	30.89	...

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Steel and Metal DIGEST

VOL. 13 OCTOBER, 1923 NO. 10

THE BUSINESS SITUATION

A fair volume of general business seems assured for the remainder of this year. As yet, however, trade in some important lines is disappointing. It is also significant that there are increasing signs of an unbalanced condition of industry. There is not much in the present situation to support a strong feeling of optimism. On the other hand the tendency toward pessimism is to be deprecated. Between these two extremes there is a position the maintainance of which is justified by recent developments. The conservative feeling which is actuating observant business men is commendable.

It is fortunate that the tendency toward inflation which was prominent in the Spring has been followed by some reaction in trade and industry accompanied by a cautious disposition among business men. The prevention of inflation in the first four months of this year apparently means the prevention of depression in 1924. The reaction which has occurred in the last few months, however, seems likely to make further headway next year, interrupted possibly by some increase in the volume of business in the next two or three months.

Favorable Factors

Favorable and unfavorable factors can always be cited at any given time.

The predominance of either favorable or unfavorable elements gives the trend to business. Among the most favorable influences at the moment may be noted sound money and credit conditions, the large purchasing power of a majority of the people as a result of high wages, continued large railroad traffic, especially the movement of miscellaneous commodities, improvement in the agricultural situation as reflected in more remunerative prices for products of the farm and full employment of all those who are ready and willing to work for fair remuneration. The latter follows as a natural result of high production in the industries in general.

The volume of trade must necessarily be large as it is predicated upon production.

Unfavorable Factors

On the other hand we have evidence of militant union labor—especially in the coal and railroad industries—demoralization in the oil districts, unsatisfactory developments in the copper industry, depression in the rubber trade, unsound conditions in coal mining fields, reaction in the iron industry and grave unsettled conditions, political, financial and social, in Europe. This latter state has a direct bearing upon our unfavorable foreign trade. Another disquieting element is the increasing tendency among certain classes of the people to seek assistance at the hands of the Government at the expense of the general weal. It is this growing tendency to seek redress through legislation which is bringing an undesirable political influence into business affairs.

Money and Credit

Money and credit conditions of the country are well shown by the Federal Reserve Board which states that since mid-summer of last year the banks have extended to commerce and industry a large amount of additional credit, and the present large volume of member banks credit in use is greater than ever before at this season of the year.

This year the agricultural demand for currency comes after a period of more than a year of credit growth. Member banks are now meeting the additional demand for credit to market crops through the use of funds released by the liquidation of loans made during the growing season and through increased accomodation at the Federal Reserve Banks.

Banks in the agricultural districts are in strong position to meet the usual increase in currency demand which comes at this season of the year.

The increased demand for credit early in the year was largely concentrated in industrial districts.

Bank Loans.

It is significant that in the last year bank loans in the larger cities increased nearly $1,000,000,000, the borrowing being largely for industrial and commercial purposes. It would seem that the great activity in the latter part of 1922 and in the first four months of this year were largely responsible for this increased demand for credit. Banks have been enabled to meet the larger credit demand as a result of an increase of $440,000,000 in their time deposits—through an increase of a similar amount in the accomodations in the Reserve Banks—and through the use of gold imported from abroad.

Gold Reserves.

The Board further points out that from the middle of January to the middle of September this year, about three fourths of the increase of $260,000,000 in Reserve Bank discounts resulted from borrowings from Reserve Banks in the cotton and wheat growing districts.

The total money in circulation on September 1st this year was nearly $4,778,000,000 while at the corresponding date last year the total was $4,393,500,000 approximately. Of the total increase of nearly $384,400,000 during the year, about 60% was in gold and gold certificates which corresponds closely with the net gold added to the reserves in that time.

Credit Conditions.

Credit expansion continued in the closing days of September, but the indication is that while such needs were greater in the agricultural districts they were smaller in commercial and industrial sections. The tardy Fall improvement in business may call for a moderate increase in demand for credit which the banks, apparently, are able, willing and anxious to grant. Our supply of gold is still increasing, giving foundation for an even greater credit structure. These conditions tend to prolong the era of high prices in the United States. It is not a wholly healthful situation and it is fortunate that the spirit of caution, although not popular in some banking circles, apparently, is alive among thinking business men.

Agriculture.

In the agricultural districts the situation is steadily, but slowly improving.

The value of this year's crops shows a substantial gain over the previous year's value, that is, the farming population today has a greater purchasing power than a month ago. The west is better off both financially and economically than in pre-war days.

Even in the wheat belt the situation is better. Farmers who raise diversified crops are doing well and the corn belt is prosperous. It is the unbalanced state of industry that grieves the farmer, that is, the relatively high prices that he must pay for commodities in exchange for his own products.

The change in relative conditions, however, appears to have relieved the pressure which has recently been made upon Washington for Government help.

The farmer, of course, is no more entitled to assistance from the Government than are the producers of oil, copper, and pig iron, all of whom have been suffering from unfavorable developments.

Ideal prosperity in all industries results from large production, low costs, large volume of sales and low selling prices. There is always a natural tendency to equalize production and consumption, and this is brought about by the organizing function of prices.

Attempts of a Government to interfere results in unsettlement of trade and unbalanced industry.

Rail Traffic.

Rail traffic continues to break records of previous months, although during the week ending September 8th the movement receded under the million car loading mark. It was restored again during the weeks of September 15th and 22nd. During the latter week car loadings amounted to 1,060,436 which were

about 30,000 under the maximum level of the year reached during the last week in August. A new high record in the number of cars, both loaded and empty, which were moved by railroads in any one day, was established on September 26th when 52 Class 1 carriers, representing about 96% of the total mileage for that class of roads, hauled 1,013,724 cars. With the resumption of work in the anthracite fields there was a slight increase in the number of coal cars loaded.

Prosperity of the carriers, however, seems to be a target for the farmer labor element. The wheat grower is moving for lower freight rates, and the rail labor brotherhoods are demanding higher wages. Yet it is the high wages already generally paid to labor that account in large measure for the gain in retail trade in recent months.

Labor Situation.

Turning now to the list of unfavorable factors, we find militant union labor in the van. As we pointed out last month, the unwarranted advance in wages of anthracite coal miners has encouraged other union workers to demand higher wages. The most threatening element is the opening given to bituminous miners to claim higher wages next Spring when their present contract expires. The granting of such a demand would be followed by higher prices for bituminous coal which would affect transportation and all manufacturing industries adversely. In the month between the middle of August and the middle of September, the National Industrial Conference Board showed that 22 increases in wages have been granted to labor, while the wage scale was reduced in only one instance.

From March 15th to September 14th, there were 953 wage increases against 3 reductions in the United States. The same Board also shows that never was the American working man better off than he is today. The purchasing power of his wages is greater than in the months of 1920 when wage scales were the highest in the history of the country. Records show that the cost of living in July was 61.9% above the 1914 level, but this was a decline of 20.8% from the maximum prices in July 1920. It is found that present wages have a higher purchasing power than in 1920. The principal factor in maintaining living costs in the city is rent which is 75% above the 1914 level.

In the highly organized trades, notably in the building industry, wages remain enormously high. These high wages are largely responsible for the high cost of living and the high cost of living is the excuse for demanding higher wages. It is another illustration of the vicious circle.

Oil Industry.

In a few industries, such as oil, rubber and tire, the labor factor is less prominent than excessive production, from which depression has resulted. Consumers of petroleum, however, are reaping some benefit from the low price prevailing for oil at the expense of producers. Consumption of petroleum is large but production is larger. Notwithstanding all efforts to curtail production stocks are increasing. Some curtailment is reported in the California production but even so the supply of oil is excessive. Artificial means to restrict output are proving ineffective. The very nature of the industry makes it most difficult to restrict output. As prices recede, however, below the cost of production the marginal limit will be reduced again and again until eventually production and consumption are brought into equilibrium.

Copper Industry.

A companion in misery of the oil producer is the copper producer. As a result of world's production exceeding world's consumption stocks are again being accumulated by producers and the price of electrolytic has dropped to 13.00c a pound, a recession of 4⅜c a pound from the maximum price secured in March this year. Europe has taken 34% of the American output of refined metal whereas usually foreign consumers relieve the American producer of 40% to 45% of this total output. Large American consumption compensated for the smaller exports during the first half of the year. Since that time American manufacturers have been using less copper and the present outlook is for a further decrease in home consumption.

Iron Barometer.

Usually events in the copper industry follow closely those in the iron industry and even today there is a very close relationship. For several months pig iron lost its barometric trade function

through the effort to artificially sustain prices. This effort was abandoned in September restoring pig iron to its normal position as a trade indicator. The price of pig iron has fallen $1.00 to $2.00 a ton further in the last month and although today's selling price is at or below the cost of production, consumers are still holding off in anticipation of lower prices. Stocks of pig iron today are estimated between 1,500,000 and 2,000,000 tons, 750,000 tons of this total has been accumulated by merchant producers. It is admitted that the cost of producing iron must be reduced to keep furnaces in blast if the selling price cannot be advanced. Southern furnace men have taken the initiative in reducing wages of miners and coke and furnace operatives 15%, but coke manufacturers in the north refuse to grant relief to the pig iron producer declaring that they will draw their fires rather than further reduce their selling prices.

Steel Output.

These developments point the way to lower prices for finished steel products. Independent steel makers are slowly receding in selling prices as their backlogs are consumed, and the need for orders and specifications increases. Output of steel ingots by these interests in September receded to 71½% of capacity, and today they are probably utilizing less than 70% of capacity.

Steel Corporation subsidiaries fared better than the independents in securing orders last month but unfilled tonnage was again reduced by about 350,000 tons. The Steel Corporation is always the last to either advance or reduce selling prices. The time for reducing prices with the largest interest has not yet arrived and probably will not for several months. Large consumers are as anxious to have prices maintained as are large producers. It is significant, however, that shipments which are being made today by the Corporation are at prices probably at least $10.00 a ton under the nominal asking prices for such products as bars, plates and shapes today. Only a few weeks ago the Corporation was making shipments aginst contracts taken at 1.80c to 1.90c base for these products. It is significant that relatively small sales were made by either the Corporation or independent makers of steel at the highest levels of recent prices.

To Stabilize Where?

An artificial attempt, therefore, to stabilize prices which were reached in the expansion period of the early Spring will obstruct readjustment for the time being. The very fact that activity has given place to lessened volume of sales is proof that there is an unbalanced state somewhere and that equilibrium can be restored only by giving free play to economic forces.

The Steel Corporation maintained a rate of operation in September 15% above the independents, but even at that rate produced less steel than the independent companies combined. The industry as a whole utilized a little less than 78% of total capacity last month and produced steel at the lowest rate, both daily and monthly, since December 1922.

Steel mills, especially those of the Corporation, have benefited in the last month from rail orders from the carriers but they cannot rely upon the carriers renewing purchases of other equipment at prices much if any above the level at which purchases of cars and locomotives were made early in the year. The carriers today are better equipped than at any time since before the war. They are now handling with facility record breaking traffic. More equipment is due them against contracts previously placed. The mills, however, may stimulate renewed buying of such equipment by making concessions in prices to car and locomotive builders which will bring the railroads again into the market.

Future Outlook

Never was there keener interest taken in the future outlook for business than today and never were industrial conditions more complex than today. It is no simple matter to judge what course economic events will take during the present business cycle or in fact during the next year. If we may be guided by past events, that is, in the last hundred years or so, we may be safe in assuming that the trend of general prices will be downward during the remainder of the present business cycle. It is of importance to note that business and prices are still subject to violent fluctuations following the great war. After the Armistice we had first a skyrocketing of prices in 1920 followed by deep depression in 1921, the reaction from which

carried us close to the borders of inflation this Spring. Apparently we are facing now another reaction but it may be of only minor importance. It will probably fall short of depression as much as the upward movement this Spring fell short of inflation.

Gold Standard

There is one very important factor to take into account that is, so far as the United States is concerned we are having a greater sustaining factor in our gold basis than any other country. After the war of 1812 and after the Civil War this country was on a paper money basis. This one element will go far toward helping to stabilize business in the United States. On the other hand it must not be lost sight of that the world is one great community and although we may protect ourselves against the outside world by a tariff barrier we cannot escape our responsibility for the nations that are struggling in the throes of depression. We will be called upon sooner or later to make some sacrifice to help foreign countries to stabilize. It may be on a higher level of prices for them but on a lower level of prices for the United States.

Conclusion

Facts sited above make it clearly evident why it is still wise to maintain a conservative attitude in business affairs. Neither should we be carried away by the flood of optimism that has recently been let loose in some quarters nor depressed by the fear of being overtaken by a business crisis. Rather should we maintain a middle position, the happy medium which seems to be justified by present conditions. Probably there never was a time when it was more necessary to be willing to modify opinions in conformity with current events.

COAL PROSPECTS

In practically all coal districts there has been a very decided drop in prices since the beginning of September. There had been general advances during August, produced by the anthracite scare. In some cases prices have since receded only enough to balance those advances but in other cases the declines have been greater, which means that in some cases the prices now ruling are the lowest since before the strike of April 1, 1922.

Present coal prices appear high by comparison with pre-war prices while they appear low by comparison with peak prices reached at various times in the past few years.

Relative to cost of production, prices are rather low, but the cost of production is very high, as is well understood.

The present bituminous wage scale expires March 31, 1924. Already there is much consideration of the prospects as to what will occur then. The Federal Coal Commission has made its lengthy report and is no longer in existence. Disappointment at the report depends on how much was expected of the commission, and is indeed in direct ratio to the expectations. It is only those who did not expect much that are not much disappointed. No practical way out of our coal troubles has been indicated.

No one at all conversant with what has occurred in coal in the past quarter century can doubt but that there has been altogether too much team work between the operators and the miners for the good of the public. The team work has consisted chiefly of disagreeing. The anti-trust low would forbid even two operators from agreeing with each other to restrict coal production, but it does not seem to forbid the operators and miners from disagreeing, whereby production is completely stopped at union mines. That the union operators desired, at the time the check-off was granted a quarter century ago, that all mines be unionized can hardly be doubted. The check-off does not exist in any other American industry and while the idea may have been imported from England the check-off has been abandoned there very largely if not absolutely.

The advance given the anthracite miners by the recent settlement helps the position of the bituminous miners in the matter of demanding a continuance of the present scale for the two years beginning April 1, 1924. On the other hand, sentiment among coal buyers is strong that there should be a sizable reduction. The present trend in industrial affairs suggests lessened activity in future, and there is also the fact of Winter. The prospect therefore is that there will be enough unemployment next March to weaken the position of the miners.

While stocking of coal has been the chief recommendation as a preventive of strikes there are some awkward features about the proposition. If the individual stocks and thus helps to prevent a

strike and bring about a wage reduction coal will be cheaper afterwtrds and there will be a loss on the stock. Large stocks will not necessariy prevent a strike, or what ought to be called rather a suspension, i.e., a contrivance to help the coal market. The stocks may encourage a suspension. Such a suspension has occurred at various times in the past quarter century. It may be well for the individual to stock coal, but the individual should recognize frankly that he may be paying a price, his contribution to the prevention of a suspension. He should be willing to do team work with other consumers, as the other side has done team work in the past.

As to stocking, the way is wide open. There are already large stocks, Geological Survey reporting an average increase of 5,000,000 tons a month June, July and August to 56,000,000 tons Sept. 1st. There is plenty of time to add to stocks, and at prices that are low relative to the present wage scale. The 51,000,000 tons of commercial stocks August 1st compares with the highest stock ever reported, 63,000,000 tons, both on Armistice Day and on the day last year's coal strike began.

AUTOMOBILES AND DWELLING HOUSES

In attempting to forecast the future of business men endeavor to judge the extent to which each of the important lines of industry will "run." Usually, in other words, the process is one of synthesis. The volume of business is the sum total of the individual activities.

The reasoning is from the particular to the general.

One may, of course, proceed the other way, take the total income and endeavor to determine whether men will spend more than their income, by drawing upon past savings and borrowing against savings in the future, or less than their income, by indulging in what has been called "a buyer's strike," though there is room for argument whether there ever is any such thing as a "buyer's strike."

The former method is the more trustworthy. It is practical in that one can get down to the individual, who is a known and observable factor.

The purchases of one thing or another are made by individuals, and the sum total of purchases will represent the activity in a given line of industry.

Two very important lines are automobiles and dwelling houses. There has been a disposition to set them against each other. In the past few years many men have cried out, not so much against the automobile itself as against automobiles purchases, and insisted that men ought to build houses instead.

The position of the average man, that is of say 999 men out of every thousand, is that he will spend substantially all his income and will spend it on the things he feels will give him the best value for the expenditure. On this basis some salient facts stands out in the comparison between automobiles and dwelling houses.

The cost of dwelling houses is more than double what it was in 1913. The cost of automobiles is much less than in 1913.

For designing a dwelling house one employs an architect at an expense of several hundred dollars. An automobile manufacturer may spend $100,000, which is a large amount, on a new model yet when he makes only 25,000 a small output, the expense is only $4.00.

As to quality, the test of a dwelling house is superficial appearance. It is a question with the contractor and the artisans, not of how good they can do their work, but of what they can "get away with." At best there is only inspection, not the test of performance.

With the automobile, the judgment of the buyer is based almost wholly upon past performance. The buyer knows what his purchase will probably be like in two years, four years or six years from what other machines of such ages now are.

Automobiles are built very efficiently, in factories where there is a continuous flow of raw materials in large volume in and a continuous flow of finished product out. Dwelling houses are built inefficiently, raw materials having to be delivered to a different place for each house.

Automobiles are built under open shop principles and the men must work well.

Dwelling houses are built by union labor, with outrageous restrictions limiting output.

Surely it is not difficult to see that the average man will conclude that he gets much more for his money in an automobile than in a dwelling house.

The demand for automobiles is natu-

ral, normal and spontaneous.

The demand for dwelling houses has been forced by a dire shortage of housing facilities. The most stringent part of this shortage has now been fully made up. The next volume of building of any consequence will have to be induced by substantial concessions being made to prospective customers.

CYCLES AND SENTIMENT.

From some of the things one sees in print nowadays it might be fancied that predicting the future course of business is a new art, only recently discovered, with the uncertainty chiefly as to which forecaster has the true art. Of course, as a matter of fact, attempts to forecast the future of business are as old as business itself. The two relatively new things are a new nomenclature and a greatly increased body of statistical facts from which to draw.

There is a divergence of opinion now between some of the forecasters. In the discussion some of the forecasters have brought the matter down to a clear issue, that one group pays much attention to the matter of time, in "the business cycle" while another group pays much attention to circumstances such as prices, the strain on credit, etc.

The former hold that we are likely to have receding business activity for say nine months to come, the latter hold that business will probably stay as it is or improve within a few months.

If we only knew it, there is perhaps much more in this difference of opinion than appears on the surface. It is possible that there is more in this time element than can be proved by charts or statistics. Reference to the time taken in the past for the business cycle to run its course is not conclusive, though it is the usual basis of argument. It may be after all that sentiment determines the time, that men individually are so constituted that they take their cue from the time element more than from a careful scrutiny of trade facts. Indeed, it has been said specifically, that the principal thing wrong with business today is its psychology.

The individual is very much inclined to have a sort of "hunch" that it is "time to get on" or "time to get off." One cannot deny that there is such a disposition in many men if not in the great majority. If so, it is easily conceivable that upward movements in business are largely psychological, likewise downward movements.

If business is so influenced, then the time element is important.

Men change their minds quickly, however. If many men have been thinking in the past few weeks that now is "the time to get off" and find industrial activity continues, they may change their minds, producing a favorable trend in the volume of business.

IRON AND STEEL EXPORTS AND IMPORTS IN AUGUST.

Exports and imports of iron and steel, according to Department of Commerce, decreased in August as compared with July.

Total exports in August amounted to 163,010 tons against a July outgo of 170,259 tons. In the first eight months total exports amounted to 1,314,757 tons.

The monthly average for the first four months was 164,344 tons. In August there was a gain in exports of semi-finished steel, of hoops and bands and structural shapes, and boiler tubes while in practically all other items there was a decrease. There was an especially heavy falling off in exports of tin plate.

In the first eight months of the year there was an increase of about 20% in exports of structural and fabricated steel while exports of wire rods fell off 30% and other wire products 25%.

There was also a decrease of about 25% in exports of plates and sheets as compared with the corresponding period last year.

Imports in August also fell off, the total being 45,432 tons against a July income of 53,448 tons. The decrease in the first eight months of the year was particularly marked in pig iron, ferro alloys and scrap, while there was a net increase in importations of semifinished steel, rails and plates. The average monthly imports in the first eight months was 76,831 tons.

Exports of Iron and Steel From the United States.

	Tons		
Articles.	July.	Aug.	Jan. to Aug. inc.
Pig iron, not incl. ferro alloys	2,966	3,117	20,928
Scrap	4,598	13,662	39,533
Ingots, blooms, billets, sheet bars and skelp	6,480	9,684	79,602

	Tons		
	July	Aug.	Jan. to Aug. inc.
Iron bars	707	765	10,684
Steel bars	14,531	12,625	111,124
Alloy steel bars	635	117	1,685
Wire rods	1,885	1,548	19,682
Plates, iron and steel	8,599	8,586	83,854
Galv. sheets ...	9,454	6,943	83,894
Blk steel sheets	7,472	5,781	69,188
Blk iron sheets	1,275	1,341	10,217
Hoops, bands and strip steel ..	2,696	3,119	26,510
Tin plate, terne plate,etc. ...	13,029	5,995	70,349
Structural shapes, plain material	10,861	14,165	91,026
Struc. materials, fabricated ...	7,015	7,628	49,980
Metal lath ...	101	120	796
Steel rails	24,521	22,718	165,050
Rail fastenings, switches, frogs, etc.	4,838	3,067	26,055
Boiler tubes and welded pipe .	16,670	17,577	121,760
Cast iron pipe and fittings .	2,317	2,487	18,345
Malleable iron pipe fittings	1,005	913	5,311
Plain wire ...	7,118	4,690	62,207
Barbed wire and woven wire fencing	8,384	5,010	54,890
Wire cloth and screening	189	303	1,167
Wire rope	550	465	4,502
Insulated wire and cables ..	98	130	1,391
Wire not elsewhere specified and mfrs. thereof	1,481	1,368	10,150

	Tons		
Articles.	July.	Aug.	Jan. to Aug. inc.
Wire nails	3,781	3,245	26,116
Nails other than wire, incl. tacks	621	761	6,116
Horseshoes	83	48	593
Bolts, nuts, rivets and washers, except track ..	1,726	1,614	12,667
Car wheels and axles	2,815	1,839	13,304
Iron castings ..	1,000	768	6,801
Steel castings ..	426	474	3,304
Forgings	246	253	2,119
Ferro-manganese	82	84	657
Ferrosilicon ...	4	.....	3,220
and spiegeleisen			
Total	170,259	163,010	1,314,757

Imports of Iron and Steel Into the United States in 1923.

Alticles.	July.	Aug.	January to August inclu.
	Tons		
Pig iron	19,760	14,564	328,464
Ferromanganese, mang. metal and alloys	11,314	6,845	64,894
Ferrosilicon	1,069	489	8,912
Scrap	14,216	9,900	140,762
Steel ingots, blooms, billets, slabs, steel bars, etc.	1,061	3,579	12,587
Bar iron	760	1,208	6,271
Structural shapes .	2,092	1,389	7,453
Rails and splice bars	1,134	4,449	20,105
Boiler and other plates	1	828	1,311
Sheets (skelp) and saw plates	224	740	1,672
Tin plate	92	116	9,586
Round iron and steel wire	312	205	2,755
Wire rope and insulated wire, all kinds	45	326	782
Flat wire and strip steel	224	58	816
Wire rods	148	90	2,225
Tubular products .	530	285	3,028
Nails and screws .	72	107	884
Bolts, nuts, rivets and washers	6	22	149
Castings and forgings	388	232	2,029
Total	53,448	45,432	614,695

IRON AND STEEL PRODUCTION IN THE WEST.

A great deal of effort has been exerted by a group of men in British Columbia in an attempt to establish an iron and steel industry on the Pacific Coast, The prime mover in this enterprise is Mr. H.-J. Landahl, who has been indefatigable in stirring up interest and has prepared plans for an organization on a large scale.

We understand that the executive of the British Columbia Division of the Canadian Institute of Mining and Metallurgy is watching developments in connection with this proposal. That is as it should be, and it is hoped that in this

(Continued on page 529)

THE OBSERVER'S CORNER

It is rather interesting to observe how differently men react to talk about "the business cycle." Some of the differences are due to differences in the character of work the individual does, others are due to differences in temperament or habits of thought. Men who are salesmen do not seem to like the business cycle at all. They can tolerate its existence when things are moving upwards, but they do not seem actually to like it even then. It is natural enough that when things are going the other way they should not like it. The chief stock in trade of many salesmen is the price argument, that things are going up and the sooner you buy the better. Other men take the cycle talk very seriously and endeavor to conduct their affairs according to the principle as expounded by the cycle experts. Still other men regard chart reading as one of the various forms of guessing the future and endeavor to give the findings a certain weight in their calculations. These are perhaps the best balanced men. They do not tie themselves to the idea, but are willing to "give it a show" and if it "makes good" once they will attach more weight to it next time.

Some men have been filled with the idea that if the business cycle idea were thoroughly impressed on everyone so that conduct would be modified accordingly, then the ups and downs of business would be greatly mitigated and everyone would be better off. There are other men who criticize these men because their opinion is that such talk never "helps business" and sometimes does injure it. These critics are men who are born unduly optimistic and want business to be "good" all the time, which would be all right were it not that their standard of goodness is too high.

Usually it is somewLat egotistical, really good times for them, being times in which they could make a good bit of money, but the distribution would not be good and some others would not be making as much as they should.

Some men, of limited intelligence, seem to have grasped nothing but the idea that there is a cycle. They have not mastered the principle, much less the details that the experts insist accompany business in the various stages around the cycle. The great amount of advertising the cycle has received lately, has done harm through the men here referred to.

Such men are disposed to think it is time for a business reaction, and proceed accordingly, when the actual circumstances to produce a reaction may be lacking. They think of the cycle as a matter of time rather than a sequence of cause and effect. It certainly is not a matter of time for none of the business cyclists have been able to convince even themselves that there is a definite time. The best they have been able to do is figure out an average.

The unfortunate thing is that these men, who jump at the conclusion that the cycle calls for depression, merely because a certain amount of time has elapsed, may produce a depression by their actions, in curtailing business operations that might just as well be continued. If many men act in this way they may produce a depression when there really is no occasion for one. Their conduct suggests an old story. A man who was paid weekly used to go to a gambling place every Saturday afternoon, with the unfortunate result that he lost his money, but he got quite used to it.

One Saturday afternoon he found the placed closed. The department of public safety objected to its operation.

The man was puzzled for a time, but he soon solved the difficulty. He stopped down and shoved his pay envelop under the door. Then he went away content. Men who would bring on a business depression by stopping their business just because they thought it was time to have a depression are no better.

Undoubtedly it is good to study the cycle, but "a little knowledge is a dangerous thing."

American producers of building and other materials necessary for reconstruction in Japan have been asked by Secretary Hoover, at the instance of the Japanese Government, to protect the sufferers from the earthquake disaster from profiteering and price advances. Larger producing organizations and trade associations representing industries concerned have in almost every case pledged co-operation in the attempt to hold the price levels to a fair basis.

ELECTRIC STEAM BOILERS INCREASING IN NUMBER.

"In the last sixteen months about 200,000 kw. in electric steam boilers has been put into operation or has gone under construction in this country and in Canada," says the **Electrical World.**

"This development is typical of those that always occur in the electrical industry when an economic place is found for a new application The operating voltages range from 220 to 22,000, single-phase, two-phase or three-phase, and the steam pressures range from 4 lb. to 220-lb gage, with capacities up to 50,000 kw.

"The direct-resistance and indirect-resistance methods are used in smaller units and the electrode method of heating is employed for the larger units.

"Economic considerations form the sole handicaps to a wider use of these electric steam boilers, for their operating performance is admittedly satisfactory.

Competition starts, roughly speaking, when energy costs one mill per kilowatt hour as compared with five-dollar coal and two mills per kilowatt-hour as compared with oil at 6.5 cents per gallon.

"But such figures are subject to modification because operation of plants seldom occurs at a uniform or high load factor, and often incidental items, such as increased production, greater convenience, better power factor and utilization of surplus equipment, have a decided influence on the decision. "Where surplus water power goes to waste, where the cost of fuel is high, and where there is a necessity for steam in manufacture or for heating purposes, an ideal opportunity is offered for use of the electric steam boiler in the interests of national fuel conservation, and most of the installations come under this classification.

"But there are other cases that offer opportunity for economical use of these boilers. Certain industries, such as steel mills, rubber mills and foundries which have intermittent loads with a wide variation in power demands and a need for steam, have been studying the possibilities of the electric steam boiler as an obsorber of off-peak energy, the results indicating a real opportunity.

"Where block rates and demand rates exist, electric boilers can be used some times to absorb capacity at night and on Saturdays and Sundays.

"Particularly encouraging results come from studies showing that steam for heating purposes can be generated on off-peak periods and stored for use during peak periods. At 200 deg. F. and 125 lb. gage, one kilowatt-hour of electricity will produce more than three pounds of steam, so efficiently are the boilers used, and where off-peak rates are favorable or where power demands fluctuate steam production at this high rate and with short time storage can be seriously considered.

"In other industries and in house heating at certain times of the year, hot water can be produced quickly and conveniently by electric boilers and there is opportunity for development of this business.

"So, although a general analysis shows electric steam production and electric water heating on a widespread scale to be uneconomical and unsound, many specific cases occur where they prove both economical and convenient.

"The rapid growth of the business proves that generalized condemnation of the development should not handicap the introduction of the practice in the proper places.

"The very fact that installations of the magnitude mentioned have occurred shows that economic studies have not always eliminated the electric steam boiler from consideration."

Another Use for Fuel Oil—Boston has advanced the idea that the discarded lubricating oil from automobiles be added to fuel oil and burned under boilers. The genius with his sharpened pencils figures that there are fifteen million quarts of this oil wasted yearly, which, if burned, would replace fifteen thousand tons of coal. No doubt lubricating oil could be so used, but why not reclaim it for re-use in the automobile? Oil does not lose its lubricating qualities by use. The object of draining a crankcase is to rid the engine of the mixture of oil, dirt and gasoline drip. By proper filtering to remove the dirt and heating to vaporize the gas content, the lubricating qualities of the oil are again available.—**Power.**

THE TIN OUTLOOK

(From the Mining Journal, London.)

There can be no doubt that the tin market is facing the Autumn with more confidence than has been manifested for a considerable time past. The boom which took place in the opening months of the year was a speculators' effort, and the further it proceeded the more the anxiety grew among serious observers as to what would be the extent and duration of the reaction. That reaction duly came, with a halt in American speculation and confidence, and prices eventually worked down to about £180 from which approximate level they have begun to recover only in the last few weeks. Meanwhile the consumption of tin has been proceeding with remarkable regularity, showing that the industrial situation has not corresponded to the set-back in speculative optimism. It is hardly necessary at this date to emphasize that owing to the state of affairs in Europe tin consumption divides itself into America and the rest of the world.

Future Depends on American Demand.

The whole future of the tin market depends on the magnitude of the American demand. Had the speculative setback in the United States, which began in April, been followed by a corresponding industrial decline, the tin outlook would have been exceedingly poor; but as we ventured to anticipate at the time American industrial activity has gone on almost unimpaired beyond the ordinary seasonal curtailment, and now it is evident that confidence there is again reviving, and forecasts of a continuance of prosperity—at any rate to the end of the year—are general, even the threat of a possible extension of coal trouble to industrial departments being practically ignored.

World's Consumption Exceeds Supply.

While this condition of affairs continues it is clear that the world's consumption regularly exceeds the supply.

Throughout the current year the monthly statistics showed a regular decline in visible supplies until July, when, owing so far as we can see to the dock strike in the United Kingdom, there was for the first time a slight increase in the stocks. The August statistics published this week, however, show a very remarkable reduction in visible stocks, indicating that the July augmentation was casual. At the beginning of the year the visible supply was 22,501 tons, and on August 31st it was 16,295 tons, a reduction, that is, of 6,206 tons in eight months. This reduction follows on the decline witnessed during 1922 and is part of the progressive improvement which the tin position has been undergoing ever since America resumed buying on a considerable scale in the late Autumn of 1921.

We venture on this slight resume because it indicates the relative permanence of the improvement which has been steadily proceeding. Early in the year we noticed the forecast that American takings would probably average 6,000 tons per month during the current year. The figures month by month have been as follows:

	Tons.
January	6,625
February	6,185
March	6,634
April	6,775
May	6,035
June	5,410
July	5,305
August	5,510
Total	48,479

These figures give an average for the eight months to date of 6,060 tons, showing that, up to date at any rate, the estimate is being maintained, and with the Fall buying in prospect the United States' deliveries for the remaining four months may reasonaly be expected to improve somewhat. As regards the supplies, they average a decline of 776 tons, and were that average to be maintained the visible stock by the end of the year ought to be in the neighborhood of 13,000 tons, which in the past has been a very low figure, and one which could not be reached without very marked efiect on prices.

The Undigested Pool in the East.

Comparisons with the pre-war time cannot, however, be pushed too far because of the existence of the undigested pool. Under the arrangements for liquidating the tin held under the Bandoeng Agreement the design is to release the whole amount by the end of 1924. Meanwhile as from April 1st

last 5% of the total of 17,000 tons, or 850 tons, is released to the participants to be disposed of at their discretion each month. The amount, therefore, which may have been sold from this invisible supply to date is 4,400 tons.

It is generally understood that the Banka authorities have sold their proportion, which should amount to a little under one-quarter, or say, roughly 1,600 tons. No information is available as regards the proportion of the Straits Trading Company, whose holding of 2,000 tons was entirely in ore.

When the terms of the liquidation arrangement were published that company made the following statement:

"The Straits Trading Company desire to add that as a portion of their metal sales is constantly represented by ore in transit from mines and agencies to their works, the ultimate sale of their holding will increase refined tin shipments from the Straits to only a very small extent." The inference which the public were perhaps intended to draw from this statement was that the Straits Trading Company's quota as released would not be differentiated from their ordinary sales and might, therefore, be ignored as a factor overhanging the market. The Billiton Company was affected by the arrangement to the extent of a total of 1,000 tons, and their policy was no doubt the same as that adopted by the Banka people. There remains, therefore, to be considered the 10,000 tons held by the F. M. S. government. This would represent a supply of 500 tons per month, so that at the end of August they have had freed from control 2,500 tons. It is generally believed that the government intend to give notice as soon as any of this tin is sold, and as no notice has yet been published it is reasonable to assume that they continue to hold their stock as it is released month by month. Between now and the end of the year, therefore, they will be free to sell 4,500 tons, and were the price of tin to advance to something like the level at which the metal was originally acquired it seems unlikely that they would not take advantage of the opportunity to get out of a portion of their commitment at any rate without loss. The price was put by Sir Ernest Birch at £220, and it seems to us, therefore, to rest with the F. M. S. government to set a limit to the advance in prices above something like that figure. As the tin is financed for a considerable period ahead they are under no necessity to sell, but having safeguarded the industry and their royalty by their action in purchasing when the market broke, to refuse to sell anything except at a considerably higher figure seems, in view of the uncertainties of the world today, a bolder course than we should anticipate an official administration caring to adopt.

After all, what would such a speculation amount to? It appears to us to be little more than gambling on the prospects of a long continuance of American industrial prosperity.

Effect of Cessation of Tin Smelting in the United States.

From now on America will doubtless gradually feel the effects of the cessation of tin smelting at home. The Williams, Harvey Corporation ceased production in July, and a certain amount will, therefore, normally be added to the imports. How far the English smelters will be able to respond to this by increasing the output of English tin remains to be seen, but for the time being the increased supplies of Bolivian tin arriving at Liverpool are reported to have produced considerable congestion in the allied works at Bootle.

Consumption Prospects Outside America.

Apart from America, it cannot be said that the consumptive outlook is bright; but, on the other hand, there is no reason to assume that it will become any worse. Our own tin plate trade is strong, and if only the general engineering industry can begin to recover—and there are signs that it should do so, at least to a moderate extent—consumption in this country should do better. Even if the Continental position becomes more difficult there are signs that economy in tin consumption cannot be carried much further, and with the exhaustion of supplies we have probably touched bottom with regard to demand.

There is some evidence of Russian buying in the last month or so, and though this cannot be a large factor it represents fresh consumption.

Future Prospects.

There seems to us, therefore, good reason for the feeling of confidence which at present exists generally in the

tin market. Until, however, a considerable amount of the Pool tin is disposed of any very marked advance in prices cannot be achieved without the liability to severe reaction, and we think it would be a disastrous thing for the industry if the whole of the F M. S. stocks were maintained intact for a period which might outrun the trade boom in the United States. For that reason we should expect if and when prices reach something like £230 per ton to see a portion at any rate of the released tin disposed of, and that prospect should certainly have the effect at any rate of preventing any runaway market. As regards production there is no doubt some improvement, but the F M. S. is the only country for which we have figures and these show an increase of about 600 tons for the seven months of the present year. The disturbances which appear to have existed in Bolivia do not lead us to expect a further increase from that country, and the big exports for 1922 represent probably some accumulations of stocks which are now disposed of.

Summing up, it seems to us that, given industrial peace in America, we might reasonably expect a further improvement in price during the Autumn up to the limits which may tempt the F. M. S. Government to dispose of some or all of their released tin.

INDUSTRIAL ACCIDENTS IN THE UNITED STATES.

A report on industrial accidents in the United States has recently been issued by the United States Bureau of Labor Statistics as Bulletin No. 339.

The development of the vast system of workmen's compensation throughout the country has resulted in the assembly and publication by the several compensation jurisdictions of a great volume of statistical data. About one-half of the report deals with these data in an attempt to show what can be gathered toward a presentation of the accident situation on a national scale. So far as possible the record has been arranged on a uniform classification of industries, cause of injury, nature of injury and location of injury. Unfortunately lack of information regarding the amount of exposure in the various industries renders this body of information less significant than it otherwise would be.

There are two purposes to be served by a study of accidents. First, their prevention so far as this is possible and second, the adequate compensation of those accidents which can not be prevented. Five things are necessary to know regarding accidents if their study is to be of the greatest service in accident prevention, viz.: The number of accidents, the industries in which they occur, the causes, the amount of exposure to hazard, and the severity of the accidents.

In this study information was obtained from 42 states concerning the number of fatal and non-fatal accidents; 22 states reported accidents by industries; 18 states reported causes of injury, 12 nature of injury, and 11 location of injury; only two states showed the amount of exposure, and only three reported the severity.

There was a reduction in fatalities in 1921 over those occurring in 191. The number of fatal accidents recorded by the states in 1918 was 12,531 while in 1921 there were but 9,394 reported.

The former year, however, represents the peak of industrial activity since a larger number of persons were engaged in industry in 1918 than in any other year.

The report also brings together tables from the reports of the Interstate Commerce Commission or railways, from those of the Bureau of Mines for mines and quarries and from those of the Bureau of Labor Statistics for the iron and steel industry. More elaborate treatment of these groups may be found in the publications of the bureaus mentioned.

A section is devoted to miscellaneous industries such as the manufacture of agricultural machinery, the automobile industry, building construction, paper mills, etc. These have largely been assembled by the National Safety Council and serve to supplement the showing of the industrial classifications in the several states. Indeed since these are presented by means of standard rates they give a much better idea of conditions with reference to accidents than is afforded by the number of accidents as shown in the state reports.—American Machinist.

TOPICAL TALKS ON IRON

CXXV - Steel in Automobiles

There has been a good bit of loose talk about the consumption of steel in automobile manufacture. The natural tendency, for some reason or other, is to overestimate. The automobile is popular and impressive and production of steel has grown greatly while production of automobiles has greatly increased, making it easy to jump at conclusions. Then there is frequently failure to allow for the rapidly decreasing average weight of automobiles in recent years, whereby comparisons of automobile production in number, year by year, tends to exaggerate the consumption of raw materials. The total weight of automobiles produced has not increased nearly as much in the past ten years as the number.

Some estimates of the total steel consumption in automobiles have been made by securing statements from steel manufacturers, but it is not easy to reach the exact fact even by that route. The manufacturer is likely to over-estimate, by taking as typical an especially favorable period.

One particular point it is desired to bring out in this Talk is that products that are given entirely distinctive terms in steel trade parlance come close together or even overlap. In two automobiles of different makes a given part may appear to be practically the same, yet the steel may have been sold under a totally different name. To bring this out specially a percentage table will be given below. The writer has before him data supplied by several automobile manufacturers to the Federal Trade Commission in the Pittsburgh Plus case, of steel consumed by them in each of the past five years. In the case of two prominent makes, not greatly different in character or price, the percentages of the different descriptions of steel run as follows, for 1922:

	Studebaker	Buick
Carbon bars	42.5	36.4
Alloy bars	19.6	4.6
Shapes	.4	...
Blue annealed sheets	3.4	2.5
Black sheets	10.3	6.5
Automobile sheets	16.2	25.1
Galvanized sheets and long ternes	2.4	2.3
Wire products	.1	12.4
Bands, strips and hoops	..	10.2
Strip steel	5.1	...
Total	100.0	100.0

These percentages seem rather puzzling. At a glance one might fancy that Studebaker uses alloy bars where Buick uses wire products or carbon bars where Buick uses hoops. The terms suggest to the layman quite different materials. Wire is commonly assumed to be round, but there is wire which is much wider than it is thick. The descriptions as indicated by the manufacturers' statements from which above percentage table was compiled, appear totally different, yet the parts in the cars as actually produced would look much alike. If one should estimate that all automobiles contain as much "wire products" as Buick shows, as much "alloy bars" as Studebaker shows, and so on, the total of all would of course be much too high.

It may be of interest to mention that the totals represented by the percentages given above were 84,417 net tons for Studebaker and 64,450 net tons for Buick.

Ford makes altogether a different showing, with much more alloy bars than carbon bars, and with a considerable tonnage of "shapes." As "shapes" are associated with the idea of weight this is curious.

While the writer will not guarantee the figure, it is probably correct that Ford uses an average of about 1,060 pounds of steel per car. The shipping weight has been given in one compilation at slightly under 1,500 pounds for the touring car, slightly over 1,500 pounds for the runabout and 1,900 pounds for the sedan. It would probably not be far out to take it that on an average of all automobiles somewhat under two-thirds of the weight is rolled steel products, the balance being steel forgings, iron castings, non-ferrous metals, wood, upholstery, etc.

Without making any attempt at a close estimate of the amount of rolled steel consumed in the manufacture of automobiles, some points will be given here that will enable the reader to see

the limitations. Ford production is about one-half the total and there are other cars produced in great numbers that are nearly as light. One cannot believe that the average for all cars is as high as 1,500 pounds. Production of passenger automobiles in the first eight months of this year was 2,431,063. The year's total, evidently, will not reach 3,600,000. At 3,600,000 cars and 1,500 pounds per car, both being outside figures, there would be 2,700,000 net tons of rolled steel. Yielding to the popular desire for an estimate of the "percentage" of the automobile industry, it may be stated that production of steel ingots in the first eight months of this year was 30,406,925 gross tons, and rolled steel runs about 75% of the ingot output, whereby there was production of rolled steel at a rate of 38,400,000 net tons rolled steel a year, of which 2,700,000 net tons would be 7%. This is not an estimate, but a statement of the outside limit. It does not include trucks. About one-ninth as many trucks are built as passenger automobiles.

If steel production decreases more than automobile production, which is not entirely improbable, the percentage, whatever it may be, will increase. Production of automobiles per thousand tons of steel ingots made was greater in the second half of 1921, a lean period, than in the first half of 1923, a fat period.

WORLD PRODUCTION AND CONSUMPTION OF METALS

The following figures showing the world's output and consumption of the principal non-ferrous metals during the past three years in comparison with 1913 are according to the statistics com iled by the Metallgesellschaft of Frankfurt-on-Main, Germany.

(In metric tons of 2204.6 lbs.)

Aluminum.	1913.	1920.	1921.	1922.
World's output	68,300	158,200	90,500	112,000
World's consumption	66,800	165,900	86,000	120,000
Lead.				
World's output	1,185,800	910,000	868,300	1,084,000
World's consumption	1,201,300	948,800	830,300	1,066,700
Copper.				
World's output	1,022,000	942,200	549,200	893,000
World's consumption	1,052,000	963,400	603,800	986,000
Zinc.				
World's output	1,000,800	714,300	439,700	702,000
World's consumption	1,001,000	667,300	452,600	763,900
Quicksilver.				
World's output	4,000	2,800	2,100	3,300
Tin.				
World's output	132,500	121,800	105,700	121,300
World's consumption	129,100	127,000	82,600	129,800

Germany's production and consumption are set out below, in metric tons:

Copper.	1913.	1920.	1921.	1922.
Output	41,500	20,500	25,000	32,000
Consumption	259,700	73,700	126,500	148,100
Lead.				
Output	188,000	59,000	75,000	72,000
Consumption	230,400	67,500	101,400	150,000
Zinc.				
Output	281,100	99,200	90,000	80,000
Consumption	232,000	71,800	64,200	83,600
Tin.				
Output	12,000	3,000	4,000	5,500
Consumption	19,900	7,300	11,300	12,200

TECHNICAL AND COMMERCIAL ABSTRACTS

Automobile Figures—Figures compiled by **Automotive Industries** covering the relation between Ford cars and all others show a steady gain for the Ford in proportion to the total. In 1914 there were 405,000 Fords registered, this being 29.4% of the total of 1,376,000 cars.

Successive years since then have shown the Ford proportion steadily increasing, until the 1922 figures give 5,156,000 Fords out of 10,913,000 total, or 47.2% Fords. It may be noted that the other cars taken as a group exceeded the Fords in 1922 by a total of 601,000, compared with an excess of 852,000 in 1921.

Thus the Ford gain over the others in one year was 251,000 cars. Ford registration in 1922 was 1173% higher than in 1914; all other cars registered 493% higher.

IRON AND STEEL

Nickel-Bend Test for Wrought Iron—All of the laboratory work in connection with this investigation by the Bureau of Standards has been completed, and the report is being assembled for publication. The general conclusions which the results appear to warrant are given below. Crystalline areas appear most readily in the fractures obtained in the nickel-bend test of those wrought irons in which the individual slag threads are small and uniformly distributed. The presence of "steel" in wrought iron, since it is conducive to this condition, favors the formation of such crystalline areas. The converse, however, is not true. A crystalline area in this fracture is not a sure indication of the presence of "steel" in such wrought iron. The test cannot be used as a means for detecting high-phosphorous iron. A rapid application of the load in the nickel-bend test, usually by impact, is necessary for the formation of the crystalline areas.

Distinction should be made between the crystalline areas on the tension and on the compression sides of the tested bar. The latter, in general, are not to be regarded as indicative of the structural condition of the metal.—**American Machinist.**

Japan and American Steel—"Naturally in the discussion of the calamity that has overwhelmed Japan not a little has been said as to the large amount of new material that will be needed to rebuild the devastated areas or to found new cities," says the **Iron Age.** "Those who recall the exaggerated estimates of requirements in steel and other materials of construction that followed the San Francisco earthquake have been chary of prediction. However, new emphasis has been given to the fact that Japan, since the war particularly, has been one of the largest buyers of American iron and steel. Without the trade of that country and Canada our steel exports would fall to pitiful figures. Ten years ago, or in 1913, Japan's purchases from American mills were insignificant compared with those for any year since the war. The industrial advance yonder during the war and since has been phenomenal. While no measure now can be taken of these heavy purchases which must be re-bought, since much of them entered consumption in unharmed areas, there is no question that much of the financing of reconstruction will be done here, and that Japan will continue to be a heavy buyer of American rolled steel, metals and machinery."

Basset Direct Steel Process in Belgium— Interesting information relating to the Basset process of producing iron directly from the ore comes from Belgium, says the London **Ironmonger.**

It will be recalled that in this process a rotating furnace with a very high temperature of reduction is employed, the fuel being pulverized coal. The process was taken up by the Societe d'Ougree-Marihaye, the large Belgian steel firm, and at the recent general meeting of this company, the president, Gustave Trasenster, a well known figure in Belgian iron and steel circles gave some details of experimental work carried out in collaboration with Mr. Basset. Mr. Trasenster declared that the tests made by his company substantiated Mr. Bassett's claims as to the process itself; but, as so often happens when successful laboratory methods are applied, difficulty was encountered when the process was tried in practice, because the furnace lining could not stand the high temperature necessary for the completion of the reduction. If experimental work is re-

sumed and brought to a successful issue, it will behoove the English smelters to look to their laurels, as with the Basset process lower grade ore and fuel can be used than is possible at present, and with cheap labor the manufacturing price of iron would be lower than ever.

Cold Rolling and Hardness of Metals—The work to determine the effect of cold rolling on the hardness of metals is being continued by the Bureau of Standards. The general character of the results obtained show that the change in hardness resulting from cold rolling is represented by the V-curve, the abcissas of which show the degree of cold working, and the ordinates, the softness of the metal. The only possible exception found so far is aluminum of very high purity. The results obtained for a specimen of this material indicated a progressive hardening upon increasing deformation. Tin, on the other hand, gave the usual V-curve. Additional tests are being made with the "soft" metals, aluminum and tin, care being taken that the metals are tested immediately after rolling, so that the chance for self annealing is eliminated. It is also intended to make density determinations of several typical metals after various degress of cold deformation.—**American Machinist.**

Japanese Inquiries Reach the West.—The Seattle correspondent of the **Iron Trade Review** says: "Active inquiry from Japan has given the iron and steel market in this district considerable stimulus lately. However, no new business has yet been placed, as far as known.

While there is no question that Japan will be a heavy buyer, following the recent catostrophe, present inquiries are thought to be largely speculative.

Cables received here have asked for quotations principally on light galvanized and corrugated sheets and nails.

Some of this business is undoubtedly intended for temporary construction.

The trade is looking to Japan for a heavy buying movement, but it is not thought that purchasing will be active for several months after plans for rebuilding have been outlined and financial arrangements made."

Fatigue Properties of Steel—"The Bureau of Standards is carrying out an investigation on the fatigue properties of various woods and metals, and in connection with this work 26 specimens of 3.50% nickel steel have been tested in the rotating beam fatigue machine by the load deflection method," says the **Iron Age.** "The results are consistent for the different heat treatments to which the metal had been subjected.

Fatigue values of from 50 to 55% of the ultimate strength were obtained when the proportional limit was above that of the fatigue limit. When the proportional limit of the material was less than 50% of the ultimate strength, the fatigue limit was less than the proportional limit. Fatigue tests by the load deflection method have also been made in a rotary beam fatigue machine on three specimens out from a Thermit-welded rail joint. The fatigue limit averaged 31,500 pounds per square inch, with an average ultimate strength of 57,445 pounds per square inch. The average percentage of the fatigue limit to the ultimate strength was 54.9.

Machine Tool Building—"Procrastination is the thief of other things besides time when it leads an intending purchaser of a machine tool to postpone placing his order until tomorrow, or next month," says the **American Machinist.** "The first loss, of course, is suffered by the customer himself, who loses the profitable productive use of the tool during the time it takes him to bring himself to the point of placing the order. The second loss is to the community as a whole. A potentially productive machine, idle from whatever cause, represents a certain amount of processed raw material and human intelligence, skill and effort withheld from useful work. While it awaits its opportunity for service men are somewhere doing the work it was built to do, either laboriously by hand or with some less efficient machine. Dr. Steinmetz predicts that before many years have passed those who do the productive work in our mills and shops will be able to produce all that civilization needs by working four hours daily. He may be right, but that day will never dawn so long as productive machines stand idle in the builder's shop or on the dealer's floor."

Good Advice in Steel Industry.

"Fundamental conditions prevailing in the steel industry today are decidedly different in many respects from those that existed ten years ago." says the **Iron Trade Review.** "Scarcely more than a superficial examination of the situation is necessary to establish this fact beyond reasonable question. Productive capacity so enlarged that apparently an excess now exists, more confused and less stable labor relations, an expanded consumption more subject to shifts and changes, more complex problems of merchandising and distribution, these and other factors have produced a situation which not only has affected competitive relationships, but has thrust forward new demands upon the good management and administration of the whole industry. Probably at no time since the formative stages of the industry has wise and progressive leadership been more put to test. It is a hopeful and wholesome sign, therefore, that a number of steel executives have not allowed the exacting demands of their own vigorous enterprises to keep their minds unconcerned and unchallenged by the broader problems of the whole industry, but on the contrary have been giving some deep and direct thinking of these questions. No one with reason may assert that the steel industry has remained blind to its opportunities or to its responsibilities toward the public.

However, there has grown up in the industry an unfortunate disposition to do things as they always have been done, and not to modify policies to fit the manifest needs of the time. Ten-year-ago methods are out of place today. Those executives who have been thinking straight and vigorously expressing their opinions, by arousing the consciousness of the industry to its own shortcomings, are doing it an invaluable service."

Dry Cleaning of Blast Furnace Gas—At the blast furnaces of the Pittsburgh Steel Company, Monessen, Pa., experiments conducted by George B. Cramp have resulted in the development of a dry process for cleaning blast furnace gas, in which dusty gas from the furnace is caused to drop its usual dust burden into a hopper, and the latter in turn fills a vertical grid with dust. The dusty gas must then go through this dust curtain in its passage through the apparatus, and in so doing is filtered to a uniform cleanness of 0.083 grain of dust per cubic foot of cleaned gas. Average wet washed gas at Monessen runs 0.12 grain per cubic foot of cleaned gas, and best previous results with dry cleaners have shown considerably higher dust content per cubic foot than wet washed gas.—**Iron Age.**

FOUNDRY WORK

British Begin Research—According to the monthly report of Secretary Thomas Vickers, of the British Cast Iron Research Association, research is making progress, and experimental castings are continually being made in various foundries to obtain data on chemical and physical properties. Important results on draws and shrinkages are being obtained. Arrangements are being made for a thorough investigation of foundry sands to be carried out at Birmingham University. Engine cylinders have been cast to variable specifications and are being tested. The joint research with the Glass Research Association on glass molds is making progress. Steps have been taken looking toward standard specifications for gray iron castings in conjunction with the British Engineering Standards Association.—**The Foundry.**

Gives Foundry Course — "The Cass Technical High School, Detroit, will offer a course in pattern making and foundry practice, leading to an apprenticeship with advanced standing or to credit in an engineering school," says **The Foundry.** "It is designed to give some understanding of the various types of work connected with the production of castings, together with a working knowledge of the principal types, including wood pattern making, metal pattern making and foundry procedure, embracing molding, core making and cupola practice. The amount of time spent on shop work is two 45-minute periods daily, except the third year, during which this amount of time is doubled."

Cast Iron for Enameling Purposes—The Bureau of Standards has received a number of specimens of typical enameling castings, and these are now being enameled with several commercial cast iron enamels. The chemical analysis of the castings has been made, and

the bureau also plans to make up typical bodies of cast iron in its metallurgical division. The specimens thus obtained will also be analysed chemically and enameled.—**The Foundry.**

FOREIGN

The Spanish Machinery Market — It seems that during the last few years American machinery manufacturers have paid but little attention to the possibilities offered again by the Spanish market, according to a European correspondent of the **American Machinist.** Up to the outbreak of the war Spain imported all kinds of machinery and tools from the United States, the Spanish manufacturers being well aware of the superiority of the American makes. Immediately after the close of the war German manufacturers made the greatest efforts to regain their foothold on the Spanish market, and likewise did Swiss, Swedish and English machinery makers. It should be borne in mind that during the war quite a number of new industries sprung up in Spain, and the demand for all kinds of modern tools is quite important at the present time. Of late French machinery manufacturers are also paying closer attention to the Spanish requirements. American manufacturers anxious to do business with Spain should send catalogues printed in Spanish. English catalogues are of little use. They should furthermore bear in mind that their prices should not be too high. Men in the trade state that as a rule Swedish prices are about 10% lower than the American and Swiss prices. German products pay indeed higher import duty rates than other countries, but as the Spanish government authorities do not demand a certificate of origin, German machines and tools are being shipped quite frequently via a country with high rates of exchange, mostly via Holland.

South African Steel Companies — A further development in the South African steel industry is indicated by the proposed amalgamation between the South African Iron & Steel Corporation (Ltd.) and the Newcastle Iron & Steel Company (Ltd.). This announcement followed shortly upon the amalgamation of the Union Steel Corporation (Ltd.) and the South African Iron & Steel Corporation (Ltd.). The union of the three plants will bring the combined output appreciably nearer the government's bounty of 15s per ton offered in respect to plants with a minimum capacity of 50,000 tons per annum for iron and steel production from native ores. It is reported that the new concern has the support of large and important financial houses and steel producers in England. —**Iron and Steel of Canada.**

LABOR AND EFFICIENCY

Wage Earners Better Off.—Contrary to general belief, the American wage earner in 1923 is better off than during the so-called "peak period" of three years ago. He is, in fact, in a more prosperous condition than for a long time. His earnings have risen in the past year so much more than his living expenses that 1920 no longer need be considered as the most recent high water mark for the worker in industry. These conclusions have just been announced as the result of the researches into wages and the cost of living by the National Industrial Conference Board of No. 10 East Thirty-ninth Street, New York, City. As the result of a study of conditions in plants employing more than 600,000 workers, the board finds that the "weighted" or comparative excess of rising wages over rising living costs was between 17 and 18% greater in May, 1923, than in June, 1920, with the figures of the last pre-war month—July, 1914—as a basis. —**American Industries.**

Development of Farm Electrical Equipment—"As has been stated before, the secret of successful electrification of the American farm lies in the development of equipment designed for use with the electric motor and to take advantage of the economies that use of electrical enargy has shown possible in other fields," says the **Electrical World.** "Belting a standard motor to any one of the present pieces of farm equipment that can be motor-driven is no more the solution of the problem than was a similar course the solution of the problem of electrifying industrial establishments. Twenty years ago central station men were running tests in factories to determine how the electric motor could be substituted for the steam engine. Many a long argument took place as to the relative merits of the two sources of power. In many cases a

motor was belted to the main-line shaft, and then the fun of finding why the calculations as to the cost of operation were not met began. Since that era there has been a tremendous development of equipment for industrial use. The electric motor and industrial equipment have been adjusted and readjusted to each other until the ensuing economies have made the question of the relative merits of the two forms of power obsolete. It has taken 20 years or more to reach the present stage of progress in the industrial field and utilize to a reasonable degree the inherent advantages of electrical energy."

Research and War's Burdens.—In order to maintain current standards of living and culture in the face of burdens left by the war, it is imperative that industrial development in future be definitely assured," says **The Blast Furnace and Steel Plant.**

"Since manufacturing advances are won by the introduction into industry of new knowledge, it follows that new knowledge must be systematically sought, and that a portion of the product of industry must be set aside for pursuing the means of further progress. On the personal side it calls no less for the proper technical and social education of all grades of workers, together with the fullest utilization of their powers in modern administrative systems affording the most effective co-ordination of personnel.

The organization necessary to meet the two requirements thus broadly distinguished as research and education will be an integral part of the newer type of industrial administration, and the exercise of these functions will provide solutions to many pressing industrial problems."

Progress Toward Shorter Hours—"The report of one month's progress in abolishing the twelve-hour day clearly shows that those reformers who expected the change to be made quickly and easily were in error, while iron and steel company operators who foresaw many difficulties, did not exaggerate the size of the undertaking," says the **Iron Age.**

"Some of the difficulties have indeed been greater than any of the operators had expected, but after a month it is certainly well within the truth to say that much has been accomplished by the Steel Corporation subsidiaries, which have naturally been leaders, and that many of the independent companies are not far behind the Steel Corporation, while others are progressing very slowly, and some have not made any move toward changing the hours of labor.

One effect of change is seen in the hint that many of the iron and steel workers would be better satisfied if they had an opportunity to work in gardens or in other outdoor employment during their spare time. The desire of workers in various lines to get away from cities may result, in the case of the steel industry, in more plants being located in what are now strictly rural districts, following the example of companies located on the outskirts of various smaller cities in Ohio, as Warren, Massillon and Ashtabula. Such a change is greatly to be desired."

Crisis in Miners' Union—In an editorial of the **Railway Review** the following caustic comments are made regarding the miners' union: "The revelations of the United Mine Workers of America as to Bolshevist tendencies within the union may be likened to De Quincy's 'Confessions of an English Opium Eater'. The present fulminations are the effect of a chronic addiction to anarchistic practices rather than the outpourings of a perturbed conscience. The miners' union has been notoriously corrupt and highhanged in years past, its leaders having often condoned and encouraged armed warfare against the civil and military authority of various states. The code of the miners' union is the code of might. In their stubborn quest for power the officials of all ranks have repeatedly had resort to might and violence. Insurrection, anarchy, lawlessness and industrial despotism have not been forced upon the union by communists, but were accepted and practiced by the officialdom of the miners' organization long before the inception of the present-day communist movement. The inglorious Herrin atrocity, which is yet fresh in the memory of the public, was only one of a long series of acts of criminal lawlessness characteristic of the miners' union."

Industrial Holiday Spending—Leading educators of scientific schools have been spending five weeks of their Sum-

mer vacation studying electrical equipment production facts at the East Pittsburgh and South Philadelphia works of the Westinghouse Electric & Manufacturing Company. The object of the conference is to bring the various participants closely in touch with the latest production methods, which gives them a broader viewpoint of industry in general, so that they may be better fitted for teaching their respective subjects. Each professor may specialize in some particular activity of his own choice, either design, application, production or test. At the same time the group participate in a daily conference with one of the departmental heads. The conference program is very broad, bringing to the teachers the experiences of specialists on all phases of electrical, steam and auxiliary equipment.—**Railway Review.**

America's Strike Bill — Heinrich Gohring, a German statistician, has produced some very interesting figures on strikes in various countries during the latter half of the year 1922. He shows that during that time the United States lost more time through strikes than all the other industrial countries of the world lumped together. This country lost 14,691,000 working days in six months out of a total of 20,212,036 working days lost through strikes in all the 17 leading industrial countries. As if to emphasize the fact that no other country approaches our waste of industrial time, the records show that Spain, in second place, lost only 1,180,000 working days, and Germany in third place only 1,079,656. Switzerland was freest from strikes and lockouts, losing only 5,180 working days from those causes. The period is perhaps a little unfortunate, from the American standpoint, in that it contained two wide-spread and long continued industrial conflicts—the coal strike and the railway shopmen's strike. Nevertheless the figures are startling.—**American Industries.**

Better Conditions Attract—"Change from the 12-hour day to the eight-hour turn in blast furnace operation will mean an increase in the cost of production of pig iron, for undoubtedly an increase in the hourly rate of pay will have to be made," says **The Foundry.** "This will not affect the individual foundryman, because while the price of pig iron may be increased it will be advanced alike to all foundrymen, and none will be put to disadvantage in reference to another. But castings producers might benefit from the lessons taught. It has been shown in some districts that a class of men who would not work at a blast furnace under the 12-hour shift now seek this kind of employment. This indicates that when the foundry industry is in need of more workers it will be able to obtain them through improving working conditions. Notable advances have been made in recent years, especially in some branches. An exception is noted in many foundries where the cupola tenders and charging gang have jobs which do not appeal to high-class workmen. Possibly better control of melting conditions could be secured through offering stronger inducements to a more intelligent class of workmen in these individual cases to be responsible for weighing up the charge and actually handling it into the cupola. One man cannot operate and charge the cupola, but is dependent upon those helping him who should be trustworthy and intelligent."

Saving the Workman—"Figures presented by the United States Steel Corporation show that during the last 16 years 35,000 of its employes have been saved from serious injuries or death through safety education and measures used by the company," says **American Industries.** "They show that education of employes saves company money as well as employe life and limb. The company has all the more reason to keep its employes whole in this day of restricted immigration, but it began safeguarding them years before the immigration stream slackened. Big business demands caution in its plants now. Education is essential if the workmen are to know how best to do their work and how to protect themselves in handling the intricate machinery around which they must labor. The idea is by no means new, and the giant steel concern is not the only one that has adopted it. The results gained by the United States Steel Corporation, however, are probably typical, and they prove conclusively that safety education is as much an essential for efficient labor in a plant as are the weekly payrolls, cost sheets and general production spurring machines."

(Continued on page 504)

COMPARISON OF METAL PRICES

	Range for 1921.		Range for 1922.		Range for 1923		Closing Sept. 29,
Pig Iron.	High.	Low.	High.	Low.	High.	Low.	1923.
Bessemer, valley	32.00	20.00	33.50	19.00	31.00	26.50	26.50
Basic, valley	30.00	18.00	30.50	17.75	31.00	24.00	24.00
No. 2 foundry, valley ...	33.00	19.50	35.50	18.75	31.00	24.50	24.50
No. 2X fdy. Philadelphia	33.79	19.84	34.76	21.34	33.16	25.25	25.76
No. 2 foundry, Cleveland	33.56	20.56	35.50	19.56	32.50	26.00	26.00
No. 2X foundry, Buffalo .	31.25	19.00	34.25	19.50	30.25	24.00	24.00
No. 2 foundry, Chicago ..	33.00	18.00	33.00	18.50	32.61	26.61	26.61
No. 2 Southern, Birm. ...	34.00	16.50	28.00	15.00	27.00	21.00	21.00
Scrap Iron and Steel.							
Melting Steel, Pittsburgh	17.00	12.75	22.00	14.00	27.00	17.00	17.25
Heavy steel scrap, Phila.	16.00	10.00	19.00	11.00	26.50	15.50	16.75
Heavy melting steel, Chi.	16.50	10.00	19.00	11.00	24.50	15.25	15.50
No. 1 cast, Pittsburgh ..	22.50	15.00	25.00	16.00	27.50	20.50	21.25
Iron and Steel Products.							
Bessemer rails, mill	45.00	40.00	43.00	40.00	43.00	43.00	43.00
Iron bars, Pittsburgh	3.06	1.85	2.55	1.80	2.82	2.35	2.70
Iron bars, Philadelphia ..	3.85	1.80	2.58	1.70	2.82	2.32	2.72
Steel bars, Pittsburgh ..	2.35	1.50	2.25	1.35	2.40	2.00	2.40
Tank plate, Pittsburgh ..	2.65	1.50	2.50	1.35	2.50	2.00	2.50
Structural shapes, Pitts..	2.45	1.50	2.25	1.35	2.50	2.00	2.50
Grooved steel skelp, Pitts.	2.45	1.50	2.10	1.40	2.50	2.00	2.40
Black sheets, Pittsburgh.	4.35	2.75	3.75	3.00	4.00	3.35	3.85
Galvanized sheets, Pittsb.	5.70	3.75	4.75	4.00	5.50	4.35	5.00
Tin plate, Pittsburgh ...	7.00	4.75	4.75	4.60	6.00	4.75	5.50
Wire nails, Pittsburgh ..	3.25	2.50	2.70	2.40	3.00	2.70	3.00
Steel pipe, Pittsburgh...	57½%	71%	66%	71%	62%	66%	62%
Connellsville Coke at Ovens.							
Prompt furnace	5.00	2.75	15.00	3.75	9.00	4.00	4.00
Prompt foundry	7.00	3.75	16.00	3.75	9.50	5.25	5.50
Metals — New York.							
Straits tin	65.00	32.50	39.00	25.50	51.50	37.50	41.37½
Lake Copper	20.50	13.75	14.00	12.00	17.50	13.75	13.75
Electrolytic copper	19.50	12.75	13.75	11.50	17.25	13.30	13.40
Casting copper	19.25	12.75	13.00	11.25	16.87½	13.12½	13.15
Sheet copper	29.50	22.50	21.50	19.50	25.50	19.25	21.50
Lead (A. S. & R. Co. price)	9.25	4.75	5.00	4.00	8.25	6.00	6.85
Zinc (spelter)	9.85	6.00	6.10	4.25	8.35	6.00	6.67½
Chinese and Japanese Ant.	11.62½	5.20	6.00	4.45	9.00	6.25	7.70
Aluminum, 98-99%	32.75	22.00	26.00	17.00	26.50	22.50	25.50
Silver	137	59¼	73⅝	52⅝	73¾	62.25	64.37½
St. Louis.							
Lead *	9.15	4.45	5.05	3.90	8.50	5.67½	6.70
Zinc (spelter)	9.50	5.50	5.60	4.12½	8.00	5.75	6.32½
Sheet zinc (f.o.b. smelter)	12.50	11.50	11.50	8.50	10.00	8.90	9.25
London.	£	£	£	£	£	£	£
Standard tin prompts	415½	198	210½	148	232	176⅛	199
Standard copper, prompts	122	70½	75½	65¼	76¼	62⅛	62⅛
Lead	52⅜	21½	26	16½	29⅝	23¾	26¼
Zinc (spelter)	63	22½	28¼	23½	39⅛	27⅝	33

* Outside market.

COMPARISON OF SECURITY PRICES

Iron and Industrial Stocks.	Range. 1920. High.	Low.	Range. 1921. High.	Low.	Range. 1922. High.	Low.	Range. 1923. High.	Low.	Closing Sept. 30, 1923.
Allis-Chalmers.....	53⅞	26½	39¾	28¼	59¾	37¾	51¼	37¾	40
American Can	61¾	21¾	35½	23½	76½	32⅛	106	73½	90⅝
American Car & Fdy...	147⅜	111	151	115¼	201	141	189	148¼	153½
American Loco. (new)	....	....	....	....	....	....	75¼	64¾	68⅞
American Smelt. & Rfg.	72	29¼	47¼	29⅝	67½	43⅝	69½	53	57
Am. Steel Found., new.	50	26	35	18	46⅛	30¾	40⅞	31⅜	35
Anaconda Copper	66½	30	50¾	31¾	57	45	53½	38	38¾
Baldwin Loco	148½	78	100⅜	62¼	142¾	92¾	144¼	110½	114¼
Bethlehem Steel.....	....	....	....	....	79	51	70	41¾	47⅞
Butte & Superior	29¼	8	22⅛	10	35¼	20⅜	37⅜	12⅞	14
Cerro de Pasco	61⅜	24¼	36½	23	46⅜	32⅞	50½	36⅝	39
Chile Copper	21¼	7¾	16⅞	9	29¼	15⅛	30⅝	24⅛	26
Chino Copper	41⅝	16⅜	29½	19½	33⅜	22¼	31⅞	14¾	16½
Colo. Fuel & Iron	44¼	22	32¾	22	37⅜	24	35⅜	25	26⅛
Crucible Steel	278½	70	107½	49	98⅜	52¾	84½	57½	58⅞
General Electric	172	116½	143¾	109½	190	136	190	167⅝	168⅞
General Motors	42	10¾	16¼	9⅜	15¼	8⅛	17½	12¾	13⅞
Granby Con.	55½	15	34½	15	35	22	33	15¾	16½
Great Northern Ore ...	41⅝	24⅞	35⅜	25⅝	45⅝	28⅞	36	25	27¼
Gulf States Steel	84⅞	25	50⅞	25	94⅞	44⅞	104⅝	65¼	74⅛
Inspiration Copper	61⅞	28	42¼	29⅝	45	31	43¾	26	27
International Harvester	142½	88	100½	67⅝	115⅞	79⅜	98½	71	73½
International Nickel...	26¾	11⅛	17	11½	19¾	11¼	16¼	11⅛	11¾
Kennecott Copper	33½	14⅝	27⅞	16	39⅝	25½	45	32	33
Midvale Steel	52¾	29½	33½	22	45½	26	33⅜	21½	25¼
National Enam. & Stg..	89½	43¾	66	26	68½	30¾	73	45	52½
National Lead	93¼	63½	87	67¾	129¼	85	136¾	108	118¼
N. Y. Air Brake.....	....	....	....	....	41⅝	24½	41	26⅝	36½
Pressed Steel Car	113⅞	72½	96	48	95¼	63	81½	48	49
Railway Steel Spring ..	106½	73	99½	67	126¼	94	123	99⅞	101¾
Ray Consolidated	22¾	10	15⅞	11	19	12⅛	17¼	9⅞	11⅜
Republic Iron & Steel.	124¾	55¼	73½	41	78½	43½	66¼	40⅛	42⅝
Sloss-Sheffield	82¼	43	56	32⅛	54½	34½	60	39¼	42¼
U. S. Cast Iron Pipe ...	25½	10½	19	11½	39	16⅛	38⅜	20	31
U. S. Smelt., Rfg. & M.	76	29½	39⅜	26	45¾	32¾	43⅜	20	24
U. S. Steel Corporation	109	76¼	86½	70	111½	82	109⅝	85½	86⅞
U. S. Steel Corp. pfd....	115¾	104⅛	115	105	123	114¼	123½	116⅛	118⅛
Utah Copper	80¾	44⅛	63⅜	41⅛	71½	59	76½	56	59¾
Westinghouse Electric.	55⅛	40	52¼	38⅞	65⅞	49⅛	67⅛	52½	58

BUSINESS TRENDS

FEWER NEW ENTERPRISES.

There were 535 new companies organized in September with an authorized capital of $100,000 or over, representing a combined total of $500,830,000. In the corresponding period a year ago 664 new concerns were incorporated, involving the sum of $650,044,000. Factors largely responsible for the lessened activity in the matter of new promotions embrace uncertainty regarding the general business outlook, higher money rates and the unsatisfactory conditions surrounding the market for securities. New oil companies make a poorer showing in the returns than for months, emphasizing the depression now prevailing in the petroleum industry.

Since January 1st, 6,734 new enterprises have been formed with a combined capitalization of $5,899,257,120. During the first nine months of 1922 7,168 charters were filed with an aggregate capitalization of $6,125,955,400. In the corresponding period of 1921 7,390 corporations were organized with a total capitalization of $6,459,128,000.

The following are the comparative figures as compiled by **The Journal of Commerce** of companies incorporated in the States with authorized capital of $100,000 or over.

	1923	1922
January	$909,693,800	$ 843,652,900
February ...	700,708,300	591,404,300
March	500,819,000	731,866,000
April	1,006,258,300	792,372,000
May	817,229,500	938,195,000
June	1,403,336,220	297,557,000
July	724,920,000	634,259,200
August	335,462,000	646,605,000
September ..	500,830,000	650,044,000
October	.....	651,577,390
November ..	.....	808,719,600
December ...	.....	813,901,000
Total	.....	8,400,153,390

FURTHER ADVANCE IN PRICES.

While commodity price levels, taken as a whole, gained slightly in September, as shown by Bradstreet's Index Number as of October 1st, the movements among different groups, and, among the products within the groups, were rather irregular. Thus, the Index Number as of October 1st was $13.0974, a gain of 1.3% over September 1st, but four groups of products declined, while seven advanced and two remained unchanged, and in the individual list thirty articles advanced, while thirty products declined and forty-six remained unchanged.

The advance of 1.3% in the index in September was about double the advance of seven-tenths of 1% in August, and was the second advance in price levels following declines monthly extending from March until August. The index number as of October 1st, $13.0974, marks an increase of 2% over the low of this year in August, but is 4.4% below January 1st, while 4.9% above October 1st a year ago and 23% above the low of June 1, 1921. It is 37% below February 1, 1920, but 50.4% above August 1, 1914.

A monthly range of index numbers of the past four years is given below.

	1923.	1922.	1921.	1920.
Jan. ..	13.7011	11.3725	12.6631	20.3638
Feb. ..	13.7236	11.4190	12.3689	*20.8690
Mar. .	13.9332	11.6001	11.8650	20.7950
April .	13.9304	11.5317	11.3749	20.7124
May ..	13.6665	11.7044	10.8208	20.7341
June .	13.3841	11.9039	10.6169	19.8752
July ..	13.0895	12.1069	10.7284	19.3528
Aug. ..	12.8201	12.0688	11.0576	18.8273
Sept .	12.9143	12.0793	11.0868	17.9746
Oct. ..	13.0974	12.5039	11.1879	16.9094
Nov. .	.....	13.3482	11.3514	15.6750
Dec. ..	.....	13.7835	11.3127	13.6263

* High record. — The Index Number compiled by Prof. Irving Fisher of Yale University for the month of September averaged 155% of the pre-war level and the dollar's purchasing power was 64.4 pre-war cents.

BUSINESS ACTIVITY OF LAST SPRING AND WINTER NOT LIKELY.

There is danger in accepting the abnormal activity of last Winter and Spring as a form to which current business conditions should be compared, but it seems opportune again to emphasize this point, says the monthly review of the Garfield National Bank. The review continues:

"To expect another Winter of such excessive demand for commodities and labor, with the accompanying bidding up of prices, is to invite disappointment. There is not today the accumulated shortage following a period of depression to create such demand.

"But this does not mean that the country is now involved in or likely to meet this Winter any period of depression. If almost any of the production or trade statistics for recent periods are compared with corresponding periods of 1922 or 1921, it becomes apparent that business at the beginning of the Fall season was moving in normal volume. Basic conditions at home have shown improvement since our last review."

BUSINESS TRENDS

A REALLY GOOD FAILURE REPORT.

September failures and liabilities made a very good showing, better as regards number of failures than for nearly three years past, while liabilities were the lightest since the late Spring of 1920. As a result of this, the third quarter showing is the best three months' exhibit witnessed since the last quarter of 1920, while the showing of liabilities is the best since the third quarter of last year. There is also noted a sharp reduction in the number of large suspensions, notably banks, for which August was notable. The latter month seems to have been a clean-up period both in this line and in large commercial and manufacturing lines. Of course, the fact that September was a short month, with only twenty-four business days in most states, needs to be borne in mind in this connection, but it is a comforting reflection that a great many pessimistic prophecies based upon the quieting down of the incipient boom of last Spring have failed to be realized, even if sang anticipations have not been quite met in the first month following the vacation period.

There were only 1,280 failures reported for September, a decrease of 10.6% from August, of 6.3% from the low level total of June, of 12% from September last year, and, in fact, the smallest monthly aggregate since November, 1920. September liabilities were only $27,497,408, a little more than half of those of August, about 15% below September last year, only 60% of those of September 1921, and the smallest monthly aggregate since June, 1920.

Following will be found the record of failures, assets and liabilties for nine months of the calendar year, with comparisons for ten preceding years:

	Number Failures	Assets	Liabilities
1923 ...	14,034	$223,813,622	$403,153,057
1922 ...	17,190	291,954,608	507,872,144
1921 ...	13,808	328,684,625	553,189,874
1920 ...	4,796	164,440,035	250,328,393
1919 ...	4,124	44,630,323	90,690,377
1918 ...	7,573	54,047,879	107,459,964
1917 ...	10,080	66,389,326	126,102,318
1916 ...	12,619	66,694,037	136,453,696
1915 ...	14,699	129,237,331	219,926,657
1914 ...	11,536	152,786,525	275,077,917
1913 ...	10,400	120,146,059	208,746,745

BANK CLEARINGS.

Total clearings at 117 cities of the United States for the month of September were $28,971,000,000, a gain of 1% over August, but a decrease of 5.5% from September a year ago. This latter was due to a reduction in clearings at New York, the total at that city being $15,071,000,000, a decrease of 12.8% from September a year ago, though a gain of 1.9% over the longer month of August this year. Clearings at 116 cities outside of New York totaled $13,900,000,000 in September, a slight fractional gain over August, and an increase of 3.7% over September, 1922. Compared with clearings at 117 cities in 1921, the September grand total this year shows a gain of 7% but compared with September, 1920 and 1919, decreases are shown of 16 and 15%, respectively.

CAR LOADINGS SHOW SMALL DECREASE.

For the fourteenth successive week loadings of revenue freight by the American railroads exceeded a million cars, totaling 1,060,436 cars in the week ended September 22nd. This was a decrease of 144 cars from the total of the preceding week.

Loadings continue to run at a record rate for this time of the year. In the week ended September 22nd they were 99,298 above the corresponding week last year and 186,795 above the same week two years ago.

A new high record in the number of cars, both loaded and empty, moved by the railroads on any one day, was established on September 26th, when fifty-two Class 1 carriers. representing about 96% of the total mileage for that class of roads, moved 1,013,724 cars. This exceeded by 41,521 cars the previous record, which was established on September 19th this year.

The following table presents a comparison of car loadings each week since May 19th with those of the corresponding weeks during the two years previous:

	1923	1922	1921
Sept. 22	1,060,436	961,138	873,641
Sept. 15	1,060,580	937,221	852,552
Sept. 8	928,858	823,247	749,552
Sept. 1	1,092,567	923,806	831,288
Aug. 25	1,069,932	879,902	828,883
Aug. 18	1,035,741	846,266	815,147
Aug. 11	973,162	842,690	808,269
Aug. 4	1,033,130	842,663	786,178
July 28	1,041,044	748,859	795,432
July 21	1,028,927	845,748	788,034
July 14	1,019,667	870,676	774,384
July 7	854,748	767,025	640,535
June 30	1,021,770	862,845	776,079
June 23	1,002,740	866,321	775,447
June 16	1,007,253	848,657	775,328
June 9	1,013,249	836,208	787,283
June 2	832,041	739,550	693,903
May 26	1,014,625	806,877	795,335
May 19	991,797	780,953	770,991

FUEL

As to Henry Ford —Much publicity has been given the Ford plan to "burn coal twice," a pseudonym or an alias of our old friend by-product coke. Apparently Henry Ford, who can amply afford to do so, is going to conduct a huge experiment to find out the practical economies of taking all the more valuable by-products out of coal before it is burned.

Every one ought to be glad that Ford is making this experiment. But there is some doubt, to say the least, as to the propriety of his publicity bureau in ascribing the origin of this idea to him or his engineers. It is a plan that has been urged for years by fuel engineers, and has been tried out to some extent, and if it does in the end work economically it ought to provide cheaper—and eventually more uniform—fuel. But since he can buy the publicity he of course will have it.

What matters most is that experimenting is proceeding, from the results of which, if intelligently conducted, all should benefit.—**Electrical World.**

Reduces Ash Handling Costs.— Recent developments in the labor situation have brought home more forcibly the advantages of labor-saving equipment around the power house.

Unskilled labor is becoming more pressing in its demands and more choice in the type of work it performs.

Handling ashes is dirty, dusty, back-breaking work. Men stay at it only until they can get something less disagreeable. As a result the power plant crew is constantly shifting and changing.

The installation of labor-saving ash handling equipment not only relieves the plant of the turmoil of changing labor, but also eliminates from the payroll the services of one or more men. Foremost among equipment that has cut the power plant payroll is the American Steam Jet Ash Conveyor, manufactured by a Chicago firm. Up in Canada is the Canada West Coal Company, Ltd., of Taber, Alberta. A steam jet ash conveyor was installed several years ago, with a saving of two men and a team, the daily savings being $12.38. The Fayette mine, of Terre Haute, Ind., was able to cut two men from the payroll.—**The Blast Furnace and Steel Plant.**

MISCELLANEOUS

Effect of Earthquake on Copper Market.—"How will the Japanese catastrophe affect the American copper market?" asks the **Iron Age.**

"So much depends on foreign buying of that metal that any new demand stirs producing interests. Japan has been a heavy buyer of American copper for some years, although a new tariff law last year slowed down the movement.

In the four calendar years since the war—1919 to 1922—our exports to Japan of refined copper as ingots, bars, etc., were 110,060 gross tons, or about 11% of the total exports in those four years.

While the amount is small compared with purchases of Germany, France and Great Britain, it is by no means insignificant. How much of this copper will have to be re-purchased can only be conjectured, for much of it was used outside the devastated areas. That substantial quantities will be needed in the coming months is a reasonable expectation, the history of rehabilitation following catastrophe being like that of reconstruction after war, in the larger use of materials insuring longer life or better protection from the elements."

Canadian Agitation Against Large Locomotives—The Canadian correspondent of the **Railway Review** says: "The Brotherhood of Railway Trainmen has registered a protest against the use of large locomotives by the Canadian National Railway. A slogan of 'small engines and small trains' has been adopted by the union in the maritime provinces district. The organization that is termed the outlaw railroad union of Canada, the Canadian Brotherhood of Railway Employes, has not joined in the protest, and apparently will preserve a neutral attitude. The union leaders are preparing a campaign against the large locomotives, which includes contrasts of statements made by Sir Henry Thornton five years ago and the present action of the head of the Canadian National Railways in ordering large locomotives. The union leaders claim that Sir Henry, on a visit to New York five years ago, stated that large locomotives could not profitably be utilized. He is alleged to have agreed with Henry Ford that small locomotives and small trains were the efficient combination."

IRON AND STEEL MARKET

The chief development of September in the iron and steel market was of a negative character. The improvement that had been predicted during July and August for September did not occur. Instead, the trend in buying and in production and shipments continued downward.

There may be room for some difference of opinion whether the market would have done better in September if predictions of improvement had not been so fully placed on record, but at any rate it can be said that there was throughout the trade a decided feeling of disappointment that improvement did not occur. However, one should take into consideration the fact that in most lines of business if not all there developed during the second week in the month a very conservative attitude as to the making of commitments. A wave of conservatism seemed to pass over all business, similar in a way to that of last May, but distinctly more sudden in its movement.

The condition is more easily explained in steel than in some other lines, of there being a sharp difference between the volume of business transacted, in buying and in making contracts, and the volume of work being done. Industrial activity is substantially as heavy as at any previous time this year, as shown by employment statistics, freight movement and bank debits. The income of the people of the United States has not diminished. The spending power remains. It is not a case of people having been spending more than their income, exhausting credit and having to drop down to the level of their current income. Nevertheless there is an indisposition to make engagements ahead.

In steel the condition can be accounted for and indeed it could have been and was predicted, to an extent. While steel as a whole may not be very seasonable in character it is quite clear that less steel passes into dwelling houses and other buildings in Winter than at other seasons. There is also less oil well

COMPOSITE PIG IRON.

Computation for October 1, 1923.

One ton Bessemer, valley	$26.50
Two tons basic, valley (24.00)	48.00
One ton No. 2 fdy., valley	25.00
One ton No. 2X fdy., Philadelphia.	25.76
One ton No. 2X fdy., Buffalo	24.25
One ton No. 2 fdy., Cleveland	26.00
One ton No. 2 fdy., Chicago	26.61
Two tons No. 2 southern foundry, Cincinnati (25.05)	50.10
Total, ten tons	251.72
One ton	25.172

Averaged from daily quotations.

	1923.	1922.	1921.	1920.	1919.	1918.
Jan.	27.31	19.71	32.62	39.84	32.39	34.19
Feb.	27.98	19.31	29.95	42.72	32.39	34.19
Mar.	30.36	19.26	27.35	43.05	30.47	34.14
Apr.	31.44	20.77	25.80	43.62	28.05	33.88
May	30.84	23.91	24.67	44.43	27.74	33.88
June	29.11	24.29	23.08	44.80	27.15	33.91
July	26.98	24.54	21.57	45.60	27.66	34.04
Aug.	26.10	27.74	20.29	47.41	27.99	34.04
Sept.	25.98	32.48	20.99	48.98	28.26	34.31
Oct.	....	31.82	21.15	47.07	28.65	35.36
Nov.	....	29.47	20.92	41.80	31.48	35.39
Dec.	....	26.73	20.42	36.31	36.73	35.23
Year	....	25.00	24.05	43.80	29.91	34.38

Annual Averages.

1917	39.99	1914	13.52
1916	20.31	1913	15.42
1915	14.15	1912	14.82

COMPOSITE STEEL.

Computation for October 1, 1923.

Pounds	Group	Av. Price	Extension
2½	Bars	2.40	6.000
1½	Plates	2.50	3.750
1½	Shapes	2.50	3.750
1½	Pipe (1-3)	3.80	5.700
1½	Wire nails	3.00	4.500
1	Sheets (28 ga.)	2.85	3.850
½	Tin plate	5.50	2.750
Total, ten pounds			30.300
One pound			3.03

Averaged from daily quotations.

	1923.	1922.	1921.	1920.	1919.	1918.
Jan.	2.59	2.16	3.25	3.35	3.58	3.80
Feb.	2.72	2.14	3.10	3.58	3.58	3.80
Mar.	2.83	2.09	2.94	3.78	3.47	3.80
Apr.	2.99	2.16	2.93	3.77	3.25	3.80
May	3.03	2 18	2.93	3.71	3.25	3.80
June	3.03	2.22	2.83	3.67	3.25	3.80
July	3.03	2.23	2.63	3.70	3.25	3.80
Aug.	3.03	2.36	2.48	3.80	3.25	3.80
Sept.	3.03	2.51	2.37	3.80	3.22	3.80
Oct.	....	....	2.57	2.31	3.67	3.23	3.80
Nov.	....	....	2.57	2.28	3.50	3.25	3.80
Dec.	....	....	2.57	2.23	3.28	3.25	3.67
Av.	....	....	2.31	2.69	3.63	3.32	3.79

Annual Averages.

1917	4.46	1915	1.63	1913	1.72
1916	2.80	1914	1.52	1912	1.62

drilling, irrespective of the condition now that the statistical position of oil tends to discourage drilling.

With steel consumption faced with some seasonal decline, with the certainty that if steel prices change the change will be a decline, with annual inventory three months away and with steel obtainable very promptly on new orders it is altogether natural that the average buyer of steel should greatly curtail his purchases. While his consumption may be, and probably is, running very heavy, he can reduce stocks and he has no occasion to provide for the future.

As to business conditions generally, there is debate whether there will or will not be a decided depression, and when it will come and how long it will last. There is also some debate about "the business cycle," whether predictions should be based chiefly upon statistics of credit, prices, etc., or chiefly upon the time element. One party may claim that the conditions that have produced depressions in the past are lacking while another may claim that after a period of great activity the individual naturally prepares for a change and such prep-

PIG IRON PRICES.

(Averaged from daily quotations; at Philadelphia, Buffalo, Cleveland and Chicago, prices are delivered.)

	Bessemer, Valley	Basic No. 2 fdy. Valley		Basic. Phila.	No. 2X Phila.	No. 2X foundry Buffalo.	No. 2 fdy. Cleveland.	No. 2 fdy. Chicago.	No. 2 fdy. Birmingham.	Ferro-manganese.*	Comp. Pig Iron.
Feb. 1921	29.63	27.71	28.29	29.28	30.73	30.17	30.15	30.87	27.50	90.00	29.95
Mar. ...	26.70	24.41	25.89	26.54	28.03	29.01	27.70	27.07	25.52	90.00	27.35
April ..	25.00	23.00	24.81	25.47	26.38	27.17	26.77	25.32	23.77	90.00	25.80
May ...	24.32	22.15	23.60	23.70	24.96	25.40	25.56	23.70	21.80	85.00	24.47
June ...	22.88	21.20	22.42	23.54	24.21	22.45	24.17	22.08	20.48	75.00	23.08
July	21.34	19.52	20.40	22.40	23.00	20.68	21.66	19.98	20.18	70.00	21.57
Aug. ...	20.00	18.22	19.59	19.70	20.42	19.48	20.56	19.64	18.70	68.50	20.29
Sept. ..	20.00	19.00	20.86	19.14	20.84	20.08	20.56	22.18	19.06	66.00	20.99
Oct. ...	20.00	19.24	21.00	20.50	21.40	20.50	20.56	22.35	19.00	60.00	21.15
Nov. ...	20.00	19.00	20.78	20.50	21.93	19.82	20.56	21.79	18.56	60.00	20.92
Dec. ...	20.00	19.00	20.00	20.45	21.88	19.38	20.56	20.53	17.31	59.00	20.42
Jan. 1922	19.62	18.19	19.38	20.25	21.34	19.75	19.92	19.84	15.96	58.00	19.71
Feb. ...	19.40	18.00	18.92	19.84	21.34	19.06	19.56	19.18	15.33	65.75	19.31
Mar. ...	19.02	17.89	18.87	19.84	20.73	18.56	19.56	20.48	15.31	62.50†	19.26
April ..	20.88	19.98	20.74	20.75	22.90	20.89	20.76	21.06	15.74	68.00†	20.77
May ...	25.08	24.62	24.00	23.37	25.51	23.44	24.56	23.05	17.63	70.00†	23.91
June ..	25.00	25.00	24.00	25.00	26.62	22.96	24.56	23.83	18.44	68.50†	24.29
July ...	25.00	24.32	24.20	25.54	28.00	25.05	24.56	24.73	18.56	69.00†	24.54
Aug. ...	27.74	26.17	29.04	29.00	31.69	30.42	29.16	28.17	20.37	70.00†	27.74
Sept. ..	33.76	30.08	35.02	30.90	34.76	34.13	35.50	32.53	25.40	77.00†	32.48
Oct. ...	33.23	30.23	31.63	29.50	32.69	31.60	34.27	32.15	27.04	100.00†	31.82
Nov. ...	31.70	28.28	28.78	28.14	30.78	28.41	31.34	30.65	24.12	100.00‡	29.46
Dec. ...	27.78	24.96	25.92	27.50	28.53	26.19	27.38	28.09	22.70	100.00‡	26.73
Jan. 1923	27.50	25.00	27.00	27.90	28.72	27.44	27.83	29.09	23.23	103.00‡	27.31
Feb. ...	27.75	25.67	27.21	28.25	29.79	28.52	28.42	30.13	24.29	106.00‡	27.98
Mar. ...	29.94	29.44	30.00	29.17	31.86	29.40	31.31	31.46	26.33	117.00‡	30.26
April ..	31.00	31.00	31.00	30.50	33.01	30.17	32.50	32.61	27.00	116.50‡	31.44
May ...	30.23	29.33	30.69	30.85	32.64	29.29	32.13	32.61	27.00	123.00‡	30.84
June ..	28.73	26.85	28.04	28.20	30.47	28.87	29.85	32.11	25.63	125.00‡	29.11
July ...	26.82	25.11	25.70	26.45	27.80	25.11	27.32	28.71	25.00	120.00‡	26.98
Aug. ...	26.50	25.00	25.00	25.00	25.50	24.75	26.77	27.65	23.31	117.50‡	26.10
Sept. ..	26.50	24.92	24.96	24.50	26.03	24.65	26.71	27.36	22.81	112.00‡	25.98
Yearly averages.											
1913 ...	16.26	14.77	14.87	16.23	16.56	14.87	15.37	16.39	11.73	57.87	15.42
1914 ...	13.99	12.89	13.02	14.02	14.59	12.84	13.76	14.15	10.25	55.80	13.52
1915 ...	14.90	13.78	13.81	14.88	15.25	13.98	14.31	14.46	10.59	92.21	14.15
1916 ...	23.05	19.87	20.16	20.96	21.20	20.63	20.40	20.67	15.84	164.12	20.31
1917 ...	42.67	39.10	39.89	39.37	40.80	40.41	40.61	41.06	35.11	309.17	39.99
1918 ...	35.46	32.50	33.27	34.10	35.56	33.97	33.62	33.77	33.20	245.83	34.38
1919 ...	29.62	27.49	28.63	30.02	32.75	30.53	29.14	29.37	28.34	132.16	29.91
1920 ...	42.85	42.05	43.25	43.26	46.74	45.23	43.66	43.25	40.43	172.33	43.80
1921 ...	23.49	21.87	23.30	23.56	24.74	23.78	24.34	24.05	21.92	76.54	24.05
1922 ...	25.68	23.98	25.04	24.88	27.07	25.04	25.93	25.31	19.72	75.33	25.00

* Delivered. † Seaboard. ‡ F. o. b. furnace.

arations may in themselves cause the change.

With steel the case is somewhat different. Buyers of steel engage alternately in stocking up and in liquidating stocks. During a buying movement buyers make purchases ahead, and prices advance. When the buying movement ends, as the last one did in March or April, and prices are at their top, there is much steel due buyers at lower prices. The typical buyer continues receiving steel deliveries at below the market. When the lower priced deliveries run out the buyer is faced with paying higher prices at a time when the general condition has become easier. Practically, the market advances on him just when he is in no mood to pay an advance. Naturally he balks. Just as naturally the mills do not reduce prices as reducing prices does not stimulate buying while it does undermine such business as may still be left on books. A situation like the present has repeatedly developed in the steel trade in the past and it will develop repeatedly in the future unless methods of transacting steel business are radically altered.

Production.

Production of both pig iron and steel decreased slightly more from August to September than in preceding months. By October 1st rates in both pig iron and steel ingots were approximately 20% below their peak rates, reached in May in pig iron and in April in ingots. This left production at approximately the lowest rate of 1923 and at the highest rate of 1922.

PIG IRON

What amounted practically to a fresh declining movement in pig iron started in the latter part of September. The heavy decline had been in May, June and July, with a relatively steady market in August. Continuously merchant furnaces have been blowing out. One would expect the market to be equalized by production being adjusted to consumption, but there is the extra element that most of the furnaces, before blowing out, accumulated stocks, and thus while they are not producing they are potential competitors in the sale of iron.

UNFINISHED STEEL AND IRON BARS.

Averaged from daily quotations.

1921—	Billets. Pitts.	Sheet Bars. Pitts.	Rods. Pitts.	—Iron bars, deliv.— Phila.	Pitts.	Ch'go.
Jan.	45.00	47.00	57.00	2.85	3.06	2.68
Feb.	42.00	42.00	57.00	2.70	2.70	2.62
Mar.	39.00	39.00	47.00	2.56	2.60	2.60
April	37.00	38.50	47.50	2.35	2.45	2.45
May	37.00	39.00	48.00	2.35	2.35	2.38
June	35.00	36.00	48.00	2.20	2.25	2.25
July	32.00	33.00	43.00	2.07	2.20	1.94
Aug.	30.25	30.50	42.00	2.00	2.08	1.75
Sept.	30.00	30.00	40.50	1.97	2.00	1.75
Oct.	30.00	30.00	40.00	1.92	2.00	1.75
Nov.	29.00	30.00	40.00	1.90	1.97	1.70
Dec.	29.00	29.00	38.00	1.85	1.95	1.70
1922—						
Jan.	29.00	29.00	37.00	1.80	1.82	1.60
Feb.	28.50	29.00	36.00	1.75	1.78	1.60
Mar.	28.00	29.00	36.00	1.70	1.70	1.54
April	30.00	31.75	38.00	1.81	1.75	1.57
May	34.00	35.00	38.00	1.86	1.83	1.65
June	35.00	35.00	38.00	1.96	1.95	1.73
July	35.00	35.00	40.00	2.12	2.13	1.85
Aug.	37.00	37.00	43.00	2.16	2.15	1.95
Sept.	39.00	40.00	45.00	2.48	2.25	2.25
Oct.	39.50	39.50	45.00	2.43	2.40	2.50
Nov.	37.75	37.75	45.00	2.37	2.40	2.50
Dec.	36.50	36.50	45.00	2.32	2.35	2.50
1923—						
Jan.	37.50	37.50	48.50	2.36	2.37	2.45
Feb.	39.40	39.40	50.00	2.51	2.54	2.35
Mar.	44.00	44.00	50.00	2.70	2.70	2.50
April	46.30	45.60	50.00	2.82	2.80	2.60
May	45.00	45.00	50.00	2.82	2.80	2.60
June	43.50	43.50	51.00	2.80	2.75	2.60
July	42.50	42.50	51.00	2.69	2.70	2.60
Aug	42.50	42.50	51.00	2.72	2.70	2.60
Sept.	42.50	42.50	51.00	2.70	2.70	2.40
Yearly averages						
1913.	25.56	26.35	28.39	1.51	1.59	1.45
1914.	20.08	20.84	25.50	1.20	1.27	1.07
1915.	23.14	23.46	28.28	1.37	1.32	1.24
1916.	45.02	45.10	57.58	2.57	2.59	2.31
1917.	71.15	75.87	80.23	4.06	4.09	3.78
1918.	47.30	50.80	57.00	3.71	3.50	3.50
1919.	40.52	43,77	53.11	2.94	2.80	2.69
1920.	57.79	65.21	70.00	4.35	4.13	3.65
1921.	34.60	35.33	45.67	2.23	2.30	2.13
1922.	34.10	34.54	40.50	2.06	2.04	1.94

WAGE SCALE AVERAGES

	Bar Iron.	Sheets.	Tin Plate
Jan.-Feb. ..	2.25	3.30	4.80
Mar.-April .	2.35	3.40	4.80
May-June ...	2.50	3.60	5.20
July-Aug. ..	2.50	3.70	....*

* Returns discontinued.

PIG IRON PRODUCTION

In September, a month of 30 days, the output of anthracite and coke pig iron amounted to 3,125,512 tons which was at a daily rate of 104,184 tons. In August, a month of 31 days, the total production was 3,449,493 tons, equivalent to a daily rate of 111,274 tons, there having been a slight revision in the August figures early in September. Steel companies in September produced at a daily rate of 78,799 tons, making a total production of 2,363,970 tons. The August rate of the steel companies was 86,479 tons a day, making a total of 2,680,849 tons.

The September daily output was the smallest since January, in fact, the difference between September and January was only a few tons. Irrespective of the number of days, the total production in September was the smallest since February. The January daily rate was 104,181 tons. As compared with August the decrease in production in September was 6%. As compared with the maximum production in May there was a decrease of 16% last month.

On October 1st 255 blast furnaces were active out of a total of 419, there having been a net decrease of 15 furnaces, as 18 were blown out and three were blown in. These active furnaces on October 1st had an estimated capacity of 101,000 tons a day, or an annual capacity of 36,865,000 tons, whereas the yearly rate of output in September averaged 38,027,160 tons against an annual rate in August of 40,615,010 tons. On September 1st 270 furnaces active had a rated capacity of 106,590 tons and the 298 furnaces active August 1st had a capacity of 114,200 tons a day.

The highest rate of activity was on June 1st when 321 furnaces were operating, having an estimated daily capacity of 125,100 tons, equivalent to a yearly production of 45,660,000 tons. This, of course, is exclusive of charcoal iron. Including charcoal iron total production of all kinds of pig iron on June 1st was at the rate of 45,927,000 tons a year. Today total production of all kinds of pig iron is not much if any over the rate of 37,000,000 tons a year.

One interesting fact is that merchant furnaces in September produced 25,385 tons a day or about 591 tons a day more pig iron than in August, whereas blast furnaces belonging to steel companies decreased output 7,860 tons a day. The highest daily rate of the merchant fur-

STEEL MAKING PIG IRON AVERAGES

Bessemer and basic pig iron averages compiled by Messrs. W. P. Snyder & Company from sales in the valley market of 1,000 tons and over.

	Bessemer.			Basic.		
	1923.	1922.	1921.	1923.	1922.	1921.
Jan.	27.50	19.50	32.00	25.58	18.19	30.00
Feb.	28.02	19.50	27.00	26.38	17.75	25.00
Mar.	30.26	19.39	26.20	30.02	18.00	24.50
April	31.00	20.54	25.00	31.00	19.30	22.50
May	30.10	24.40	24.25	28.06	24.91	21.87
June	28.50	25.00	23.00	26.57	25.00	20.70
July	26.70	25.00	20.88	24.75	24.56	18.80
Aug.	26.50	28.67	20.00	25.00	25.41	18.33
Sept.	26.50	33.50	20.00	24.50	32.93	19.25
Oct.	.....	33.50	20.00	.....	30.00	19.00
Nov.	.....	31.75	20.00	.....	27.60	19.00
Dec.	.....	28.10	20.00	.....	24.57	18.69
Year	.....	25.75	23.19	.....	24.02	21.47

All prices are f.o.b. valley furnace; freight, August 26, 1920, $1.96; August 1, 1922, $1.77.

STEEL CORPORATION BOOKINGS

Changes in unfilled tonnage with shipments and bookings estimated in percentage of capacity.

	Shipments.	Bookings.	Difference.	Difference.
1922.				
Jan.	47	45	— 2	— 26,736
Feb.	57	49	— 8	— 100,609
Mar.	65	90	+25	+ 353,079
April ...	70	115	+45	+ 602,769
May	75	86	+11	+ 157,311
June	75	103	+28	+ 381,303
July	75	86	+11	+ 140,630
Aug.	67	79	+12	+ 173,944
Sept. ...	67	121	+54	+ 741,502
Oct.	76	91	+15	+ 210,680
Nov.	81	76	— 5	— 62,045
Dec.	80	73	— 7	— 94,539
Jan., 1923	86	97	+11	+ 165,073
Feb.	88	117	+29	+ 373,213
Mar.	89	97	+ 8	+ 119,343
April ...	93	84	— 9	— 114,823
May	93	72	—21	— 307,158
June	92	49	—43	— 595,090
July	89	53	—36	— 475,498
Aug.	87	52	—35	— 496,100

Unfilled Orders.

At end of the quarter, last three figures omitted.

	First.	Second.	Third.	Fourth.
1910	5,402	4,257	3,158	2,674
1911	3,447	3,361	3,611	5,084
1912	5,304	5,807	6,551	7,932
1913	7,468	5,807	5,003	4,282
1914	4,653	4,032	3,787	3,836
1915	4,255	4,678	5,317	7,806
1916	9,331	9,640	9,522	11,547
1917	11,711	11,383	9,833	9,381
1918	9,056	8,918	8,297	7,379
1919	5,430	4,892	6,284	8,265
1920	9,892	10,978	10,374	8,148
1921	6,284	5,117	4,560	4,268
1922	4,494	5,635	6,691	6,746
1923	7,403	6,386	....	....

naces was 31,641 tons in June. The probability is that there will be a sharp decrease in merchant furnace output in October as more furnaces are preparing to blow out.

The following table shows the estimated annual rates of production of pig iron in each month during the last three years.

Estimated annual rates.

	1923	1922	1921
Jan. ...	38,275,000	19,300,000	28,750,000
Feb. ..	39,250,000	21,300,000	25,550,000
Mar. ..	41,300,000	24,000,000	19,000,000
April .	43,400,000	25,250,000	14,600,000
May ...	45,800,000	27,250,000	14,450,000
June ..	44,850,000	28,900,000	13,000,000
July ...	43,550,000	28,500,000	10,200,000
Aug. ..	40,615,000	21,550,000	11,250,000
Sept. ..	38,028,000	24,950,000	13,000,000
Oct.		31,350,000	14,600,000
Nov.		34,900,000	17,200,000
Dec.		36,350,000	19,400,000

Yearly Totals

1922....	27,219,904	1917....	38,621,216
1921....	16,688,126	1916....	39,434,797
1920....	36,925,987	1915....	29,916,213
1919....	31,015,364	1914....	23,332,244
1917 ..	38,621,216	1912 ..	29,726,937
1918....	39,054,644	1913....	30,966,152

STEEL PRODUCTION

September output of steel ingots by all the steel companies, according to the report of the American Iron and Steel Institute amounted to 3,313,354 tons, equivalent to a daily output of 132,534 tons. This indicates that the industry as a whole operated at a rate slightly less than 78% last month. The annual rate was 41,085,540 tons. In August the industry, utilizing a little over 80% of capacity, produced ingots at the rate of 42,226,340 tons a year.

IMPORTANT STEEL PRICE CHANGES

At the end of 1920 prices of independent steel producers had declined to Industrial Board schedule of Mar. 21, 1919, to which U. S. Steel Corporation had meanwhile adhered. These prices are given under date of Jan. 1, 1921, subsequent changes being in open market. Only the more important changes are listed.

BARS.

Jan. 1, 1921	2.35	Mar. 29	1.50
Feb. 11	2.00	May 17	1.60
April 13	2.10	July 26	1.70
June 24	2.00	Aug. 9	1.80
July 5	1.90	Aug. 25	1.90
July 26	1.75	Sept. 27	2.00
Sept. 9, 1921	1.65	Jan. 31, 1923	2.10
Sept. 27	1.60	Feb. 16.	2.20
Nov. 9	1.55	Feb. 23, ...	2.25
Dec. 19	1.50	April 2, ...	2.35
Feb. 18, 1922	1.40	April 27	2.40

PLATES

Jan. 1, 1921	2.65	Nov. 9	1.50
Feb. 10	2.40	Feb. 18, 1922	1.40
Feb. 17	2.25	April 5	1.50
Feb. 23	2.10	May 25	1.60
April 13	2.20	July 26	1.70
June 10	2.00	Aug. 9	1.80
July 15	1.90	Aug. 25	2.00
July 26	1.85	Jan, 19, 1923	2.10
Aug. 25, 1921	1.80	Feb. 9	2.20
Sept. 2	1.75	Feb. 23	2.25
Sept. 9	1.65	Mar. 21	2.35
Sept. 27	1.60	April 2, ...	2.45
Oct. 27	1.55	April 27	2.50

SHAPES

Jan. 1, 1921	2.45	Dec. 21	1.50
Feb. 11	2.25	Feb. 18, 1922	1.40
Feb. 17	2.20	Mar. 9	1.50
Feb. 28	2.10	May 25	1.60
April 13	2.20	July 26	1.70
June 24	2.00	Aug. 9	1.80
July 22	1.90	Aug. 25	2.00
July 26	1.85	Jan. 19, 1923	2.10
Aug. 25, 1921	1.80	Feb. 16	2.20
Sept. 2	1.75	Feb. 23	2.25
Sept. 9	1.70	Mar. 21	2.35
Sept. 26	1.65	April 2	2.45
Sept. 27	1.60	April 27	2.50

STEEL PIPE

Jan. 1, 1921	57½%	Sept. 16	68½%
Mar. 24	58½%	Dec. 16	71%
April 7	59½%	Aug. 23, 1922	68%
April 13	62½%	Oct. 19, 1923	66%
July 9, 1921	64½%	Feb. 3, 1923	64%
		April 19	62%

WIRE NAILS

Jan. 1, 1921	3.25	Dec. 9, ...	2.75
Feb. 17	3.10	Dec. 21	2.50
Mar. 4	3.00	Feb. 21, 1922	2.40
April 13	3.25	Aug. 30	2.60
June 1	3.00	Sept. 27	2.70
July 9, 1921	2.75	Feb. 1, 1923	2.80
Sept. 12	2.90	Mar. 26.	2.90
		April 20, ...	3.00

BLACK SHEETS

Jan. 1, 1921	4.35	Sept. 22	3.00
Feb. 11	4.15	Nov. 1	2.90
Mar. 8	4.00	Nov. 25	3.00
Mar. 17	3.85	April 7, 1922	3.15
April 13	4.00	Aug. 14	3.35
July 5	3.50	Feb. 23, 1923	3.60
July 26, 1921	3.25	Mar. 27, ...	3.75
Aug. 1	3.00	April 3, ...	4.00
Aug. 25	2.75	April 26	3.85

TIN PLATE

Jan. 1, 1921	7.00	Mar. 21, 1922	4.60
April 13	6.25	April 5	4.65
June 7	6.00	April 24	4.70
June 14	5.75	May 17	4.75
Aug. 1, 1921	5.25	Feb. 26, 1923	5.00
Sept. 15	5.00	Mar. 23	3.00
Sept. 19	4.75	Mar. 27, ...	5.50

BLUE ANNEALED SHEETS

Jan. 1, 1921	3.55	Sept. 22	2.50
Feb. 11	3.35	Nov. 1	2.25
Feb. 16	3.20	April 7, 1922	2.40
Mar. 8	3.00	Aug. 14	2.50
April 13	3.10	Sept. 20	2.60
June 10	2.90	Nov. 23, ...	2.50
July 6, 1921	2.65	Feb. 23, 1923	2.75
Aug. 2	2.40	Mar. 23	3.00
Aug. 16	2.25	April 3, ...	3.25
		April 26	3.00

GALVANIZED SHEETS

Jan. 1, 1921	5.70	Aug. 25	3.75
Feb. 11	5.55	Sept. 22	4.00
Feb. 16	5.35	Nov. 1	3.90
Feb. 24	5.25	Nov. 25	4.00
Mar. 8	5.10	April 7, 1922	4.15
Mar. 17	5.00	Aug. 14, ...	4.35
June 22	4.75	Feb. 23, 1923	4.75
July 5, 1921	4.50	Mar. 20	5.00
July 22	4.25	April 3, ...	5.25
Aug. 2	4.00	April 26	5.00

The U. S. Steel Corporation in September, operating at an average rate of 87% of ingot capacity, produced about 1,587,750 tons of steel which was at a rate of 63,510 tons a day. In August the Corporation, utilizing 88½% of capacity, produced during the 27 active days of that month 1,737,065 tons.

Independent steel companies in September are indicated to have produced 1,726,604 tons when operating at an average rate of a little over 71½% of capacity, the daily rate being 69,024 tons. In August the independent companies, employing 74½% of capacity, produced 2,032,290 tons, equivalent to a daily output of 75,270 tons.

The steel companies which report to the American Iron and Steel Institute, including the Steel Corporation, had a September output of ingots amounting to 3,159,283 tons which was at a daily rate of 126,371 tons. In August these companies produced 3,506,755 tons equivalent to 129,879 tons daily, there having been a revision in the Institute's report covering open-hearth steel by these companies, making the total output of open-hearth steel in August 2,796,370 tons.

The revision made by the Institute in August makes the total ingot output produced by all companies 3,677,771 tons, equivalent to 136,314 tons a day. A month ago this total was given 3,679,441 tons, equivalent to a daily rate of 136,376 tons. In the first nine months of this year all steel companies produced 33,718,609 tons, equivalent to a daily rate of 144,715 tons. The companies which report to the American Iron and Steel Institute produced 32,150,694 tons, made up of 25,490,932 tons of open-hearth, 6,551,098 tons of Bessemer, 108,664 tons of all other steel.

The September output of the companies reporting to the Institute, which aggregated 3,159,283 tons, included 2,536,972 tons of open-hearth, 613,709 tons of Bessemer and 8,602 tons of all other steel.

It may be of interest to note that on September 27th the American Metal Market estimated total September production of steel ingots by all steel companies was 3,325,000 tons, equivalent to a daily rate of 132,990 tons, indicating that the industry as a whole operated at a rate of 78% of capacity. The estimate included 1,588,000 tons of ingots by the Steel Corporation, 3,170,388 tons by the companies reporting to the Iron & Steel Institute, and 1,737,000 tons by independ-

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and
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SOLICITING AGENTS
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ent companies utilizing 72% of capacity.

The rate of production of steel ingots by all companies in September was the smallest since December 1922. The total production was also the smallest since that month.

FABRICATED STEEL.

Sales of fabricated structural steel in September, according to verbal reports of the large fabricators that make returns from week to week, were less than 75,000 tons. Estimating the tonnage taken by interior fabricators who report only from month to month, the total of active shops was scarcely more than 108,000 tons, indicating a total of 118,000 tons for all shops. That is, September orders were the smallest booked in any month this year and also the smallest of any month in 1922 since February. According to trade reports September orders booked were equivalent to only about 47% of shop capacity.

According to the Department of Commerce the actual tonnage reported sold in August was a little over 131,000 tons, indicating total bookings of all shops of 140,000 tons. It is understood, however, that these figures include 22,000 tons for the Central Railroad of New Jersey bridge which contract has not yet been officially awarded. If this latter contract is included in the August total September bookings were about 32,000 tons less than in August.

It is an interesting fact that fully 40% of all fabricated work reported during the month was placed in the N. Y. Metropolitan district, including about 16,000 tons for apartments and 10,000 tons for school buildings. Oil companies placed orders for nearly 15,000 tons, mainly for oil storage tanks; manufacturing buildings between 7,000 and 8,000 tons; railroad bridges less than 2,000 tons, highway bridges about 1,300 tons; public utilities about 5,000 tons; hotels 3,000 tons; apartments and schools in the interior 3,000 tons; banks and fraternity buildings about 6,000 tons; commercial buildings 2,500 tons, and barges 1,900 tons.

Considerable work was pending when the month closed and fabricators were preparing specifications to bid on 6,000 to 8,000 tons for a steel mill in Detroit for the Ford Motor Company, 2,000 tons for a power plant for the American Gas & Electric Company, 1,200 tons for a bascule bridge in Chicago, 5,000 tons for an assembling plant in Philadelphia for the Ford Motor Company, 12,000 tons for loft buildings in New York City, 5,000 tons for a bank and office building at Cleveland, 4,000 tons for power plants in Indiana and numerous small structures but it is notable that the total tonnage of active work pending was less than in any month since June.

Department of Commerce gives tonnage booked each month by 176 identical firms, with a capacity of 230,475 tons per month, shown below, together with the percent. of shop capacity represented by these bookings. For comparative purposes, the figures are also prorated to obtain an estimated total for the United States on a capacity of 250,000 tons per month.

	Actual Tonnage booked	Per cent. of capacity	Computed Total bookings
1922—			
April	200,968	87	217,500
May	185,065	80	200,000
June	168,894	73	182,500
July	158,012	69	172,500
August ...	156,559	68	170,000
September.	146,827	64	160,000
October ..	133,037	58	145,000
November.	112,367	49	122,500
December..	138,737	60	150,000
1923—			
January ...	173,294	75	187,500
February ..	184,887	80	200,000
March	218,400	95	237,500
April	186,117	81	202,500
May	131,875	57	142,500
June	118,063*	51	127,500
July	116,774†	51	127,500
August ...	131,770‡	56	140,000
September.	108,000§	47	118,000

* Reported by 174 firms with a capacity of 230,460 tons.

† Reported by 169 firms with a capacity of 229,815 tons.

‡ Reported by 158 firms with a capacity of 224,305 tons.

§ Estimated.

Percentage of fabricated orders to total shop capacity.

	1922	1921	1920	1919	1918	1917
Jan.	40%	18%	75%	12%	53%	61½
Feb.	43½	14	95	12½	55½	59
Mar.	77	29	83½	17½	47	68
April	89	31	68	24½	64	61
May	81	28	61½	49	60	56½
June	73	37	50	65	56	47½
July	69	33½	50	74	116½	41½
Aug.	68	33	40	78½	57	38
Sept.	64	48	43	78½	60	29
Oct.	58	54	25½	77½	43	61½
Nov.	49	55	27½	69	27	77
Dec.	58	40	26	85	29	114
Av.	64.2	35	53¾	53½	55½	59½

STEEL INGOT OUTPUT

Monthly production of steel ingots, January, 1922, To December, 1922. Reported by companies which made 84.15% of the steel ingot production in 1922.

Months 1922.	Open-hearth	Bessemer	All Other	Monthly Production Companies Reporting	Calculated monthly production all Companies	No. of Working days	Approximate daily production all Companies.
January	1,260,809	331,851	822	1,593,482	1,891,857	26	72,764
February	1,395,835	348,571	616	1,745,022	2,071,772	24	86,324
March	1,918,570	451,386	795	2,370,751	2,814,667	27	104,247
April	1,997,465	445,939	1,109	2,444,513	2,902,240	25	116,090
May	2,214,774	494,693	1,474	2,711,141	3,218,794	27	119,215
June	2,143,708	487,851	2,918	2,634,477	3,127,775	26	120,299
July	2,020,572	464,047	2,485	2,487,104	2,952,806	25	118,112
August	1,807,310	404,379	2,893	2,214,582	2,629,256	27	97,380
September ..	1,911,147	460,127	2,505	2,373,799	2,818,261	26	108,395
October	2,352,207	518,010	2,198	2,872,415	3,410,265	26	131,164
November ...	2,360,903	525,945	2,449	2,889,297	3,430,309	26	131,935
December	2,241,104	536,214	2,572	2,779,890	3,300,416	25	132,017
Total	23,624,404	5,469,213	22,836	29,116,453	34,568,418	310	111,511

Monthly production of steel ingots, January, 1923 to August, 1923. Reported for 1923 by companies which made 95.35% of the steel ingot production in 1922.

Months 1923.	Open-hearth	Bessemer	All Other	Monthly Production Companies Reporting	Calculated monthly production all Companies	No. of Working days	Approximate daily production all Companies.
January	2,906,892	728,270	9,467	3,664,629	3,822,369	27	141,569
February	2,613,564	669,903	10,797	3,294,264	3,454,918	24	143,955
March	3,046,309	779,525	12,841	3,858,675	4,046,854	27	149,883
April	2,974,579	772,485	13,933	3,760,997	3,944,412	25	157,776
May	3,136,558	847,418	16,719	4,000,695	4,195,800	27	155,400
June	2,821,239	737,845	15,483	3,574,567	3,748,890	26	144,188
July	2,658,449	680,884	11,496	3,350,829	3,514,241	25	140,570
August	2,796,370*	701,059	9,326	3,506,755*	3,677,771*	27	*136,214
September	2,536,972	613,709	8,602	3,159,283	3,313,354	25	132,534
Nine mos.	25,490,932	6,551.098	108,664	32,150,694	33,718,609	233	144,715

* Revised.

FINISHED STEEL PRICES.

(Averaged from daily quotations, f. o. b. Pittsburgh.)

	Shapes.	Plates.	Bars.	Pipe	Wire.	Wire Nails.	Grooved Steel Skelp.	Sheets — Black.	Sheets — Galv.	Sheets — Blue Annld.	Tin plate.	Comp. Fin. Steel.
Jan. 1922	1.50	1.50	1.50	71	2.25	2.50	1.50	3.00	4.00	2.25	4.75	2.16
Feb.	1.46	1.46	1.46	71	2.22	2.47	1.46	3.00	4.00	2.25	4.75	2.14
Mar.	1.41	1.39	1.41	71	2.25	2.40	1.40	3.00	4.00	2.25	4.61	2.09
April	1.50	1.49	1.50	71	2.25	2.40	1.50	3.12	4.12	2.37	4.66	2.16
May	1.52	1.52	1.55	71	2.25	2.40	1.55	3.15	4.15	2.40	4.72	2.18
June	1.60	1.60	1.60	71	2.25	2.40	1.60	3.15	4.15	2.40	4.75	2.22
July	1.62	1.62	1.62	71	2.25	2.40	1.62	3.15	4.15	2.40	4.75	2.23
Aug.	1.82	1.82	1.80	70⅛	2.26	2.41	1.80	3.27	4.27	2.46	4.75	2.36
Sept.	2.00	2.00	1.92	68	2.37	2.62	2.10	3.35	4.35	2.60	4.75	2.51
Oct.	2.00	2.08	2.00	66⅞	2.45	2.70	2.05	3.35	4.35	2.70	4.75	2.57
Nov.	2.00	2.00	2.00	66	2.45	2.70	2.00	3.35	4.35	2.55	4.75	2.57
Dec.	2.00	2.00	2.00	66	2.45	2.70	2.00	3.35	4.35	2.50	4.75	2.57
Jan. 1923	2.04	2.04	2.00	66	2.49	2.70	2.00	3.35	4.35	2.50	4.75	2.59
Feb.	2.16	2.18	2.16	64¼	2.61	2.80	2.16	3.40	4.49	2.55	4.78	2.72
Mar.	2.29	2.29	2.25	64	2.70	2.82	2.30	3.63	5.00	2.95	5.09	2.83
April	2.46	2.46	2.36	63¼	2.70	2.94	2.40	3.97	5.20	3.20	5.50	2.99
May	2.50	2.50	2.40	62⅝	2.75	3.00	2.42	3.85	5.10	3.15	5.50	3.03
June	2.50	2.50	2.40	62	2.75	3.00	2.40	3.85	5.00	3.10	5.50	3.03
July ...	2.50	2.50	2.40	62	2.75	3.00	2.40	3.85	5.00	3.00	5.50	3.03
Aug.	2.50	2.50	2.40	62	2.75	3.00	2.40	3.85	5.00	3.00	5.50	3.03
Sept.	2.50	2.50	2.40	62	2.75	3.00	2.40	3.85	5.00	3.00	5.50	3.03
Yearly averages:												
1913	1.42	1.41	1.38	79¾	1.50	1.70	1.39	2.20	3.28	1.68	3.56	1.72
1914	1.16	1.14	1.15	80	1.37	1.57	1.17	1.89	2.87	1.38	3.35	1.52
1915	1.30	1.29	1.31	79¼	1.48	1.66	1.27	1.93	3.85	1.49	3.19	1.63
1916	2.50	2.82	2.48	70⅞	2.46	2.53	2.34	3.06	4.85	2.99	5.34	2.80
1917	3.66	5.21	3.49	52⅛	3.48	3.56	3.95	6.29	8.21	6.15	7.85	4.46
1918	2.99	3.24	2.89	51⅛	3.25	3.50	2.89	4.98	6.24	4.23	7.73	3.79
1919	2.53	2.71	2.43	56¾	3.06	3.31	2.51	4.43	5.78	3.63	7.08	3.32
1920	2.99	3.20	2.99	55⅝	3.40	3.67	3.00	5.85	7.39	5.06	7.29	3.63
1921	1.07	1.96	1.89	63¾	2.77	2.98	1.96	3.54	4.57	2.74	5.83	2.69
1922	1.70	1.71	1.70	69½	2.31	2.51	1.72	3.19	4.19	2.43	4.73	2.31

SEMIFINISHED STEEL

The $42.50 price on slabs, billets and sheet bars has been under much discussion. Some observers claim "the market" is not $42.50, pointing to a few cases of shading, while others assert that these are not typical. Contracts at any rate are not being readjusted. The typical sheet or tin mill does not wish to see sheet bars decline as the finished product would probably be affected.

HEAVY ROLLED STEEL

The market in general remains quotable at 2.40c for bars and 2.50c for shapes and plates. There have been some departures in the east from Pittsburgh basing but as a whole it is plain that the market is holding. Demand for all three products was remarkably light in September.

TUBULAR GOODS

Pressure upon pipe mills for merchant pipe deliveries continued heavy during September, and more could have been shipped than was available. Many dwelling houses, requiring much pipe, have been nearing completion. Jobbers' stocks are very light and will doubtless be replenished when mills can make deliveries, while the mills themselves are quite lacking the stocks they normally should carry. Oil country goods demand on the other hand has become very light, partly from the season and partly because there is no incentive to drill for oil, except to get oil from the ground before some one else gets it or to comply with the terms of leases made many months ago. Line pipe has been quiet but should the mills become anxious for business some projects would probably come out to take advantage of such price concessions as would be offered.

SHEETS

The American Sheet & Tin Plate Company opened fourth quarter order books September 6th, with a carryover averaging about four weeks, and booked a fair volume of business. Independents sold in September in about the same volume as in August, chiefly for early deliveries. Shading in black sheets, which started early in August, continued and increased a trifle, while a little shading developed in galvanized sheets. The total sales at cut prices are, however, rather light. Blue annealed and automobile sheets have been very firm in price.

TIN PLATE

The leading interest opened fourth quarter books September 6th, with a carryover covering fully half the quarter's prospective production, and promptly disposed of the remainder, chiefly to its two largest customers. Some independents had a little carryover, and while they may not have thus far sold the entire remaining output they seem to feel assured that they will do so. In other words, the present prediction in the trade is that tin mills will run to the end of the year at as high a rate as they can compass with their labor supply. The prediction is that 1924 will make a new record in consumption.

SCRAP

What little interest steel mills may have had in scrap purchases at the end of August was entirely lost in September, while dealers completed nearly all their short orders, leaving it that at the end of the month there was no buying demand from mills and scracely any from dealers. It is too early for dealers to think of buying scrap to put in yard as speculation against the next upward movement in the steel industry. Scrap prices naturally yielded all around in September, but at the close of the month not much selling pressure had yet become apparent.

IRON AND STEEL SCRAP PRICES

	Heavy melting steel.			No. 1 cast.	
	Pitts.	Phila.	Chic.	Pitts.	Chic.*
Jan., '22	14.67	11.45	11.70	16.60	12.75
Feb. ...	14.25	11.50	11.75	16.25	12.80
Mar. ...	25.35	11.75	12.50	16.25	13.50
April ..	16.60	14.25	13.80	17.25	14.70
May ...	17.25	14.70	14.95	18.25	15.80
June ...	17.25	14.50	14.80	18.60	15.50
July ...	16.85	14.40	15.40	19.25	16.00
Aug. ...	17.45	14.75	16.00	19.35	17.25
Sept. ..	20.00	17.00	17.50	21.75	18.60
Oct. ...	21.00	18.35	18.65	24.00	19.60
Nov. ...	20.50	16.65	17.60	23.20	18.50
Dec. ...	20.40	16.70	17.50	22.75	18.35
Year ..	17.63	14.67	15.18	19.46	16.11
Jan., '23	22.00	20.85	19.30	23.50	20.40
Feb. ...	23.35	21.10	20.00	24.15	22.50
Mar. ...	25.30	35.25	23.45	26.25	24.75
April ..	25.00	24.00	22.25	27.15	23.20
May ...	22.50	20.25	19.50	26.25	20.75
June ...	21.10	18.30	18.25	24.40	18.85
July	18.35	17.10	17.20	21.85	18.15
Aug. ...	17.90	16.25	16.20	21.75	17.75
Sept. ..	17.90	17.05	16.50	21.65	19.25

* Per net ton.

FERRO-ALLOYS

Business throughout September was dull and the tone of the market was weak with the general tendency of prices downward. Ferromanganese suffered from free offerings by second hands at substantial concessions and before the surplus was taken up the price of both domestic and British alloy in resale lots had dropped to $108 a ton either seaboard base or domestic furnace. In the last few days of the month the market was slightly improved in tone with more inquiries aggregating about 1,000 tons. Domestic producers at the close of the month were still willing to take some business on the basis of $110 per ton but there was less British alloy offered. English producers continued to nominally hold at $117.50 a ton duty paid at Atlantic seaboard but it is understood that some alloy was available at $112.50 or less.

Imports of ferromanganese in August amounted to 6,845 tons, making a total for the first eight months of the year 64,894 tons, being somewhat over an average rate of 8,100 tons a month. Manganese ore importations continued extremely low, August receipts being only 23,026 tons, making the total for the first eight months 127,238 tons against total receipts in the corresponding period last year of 280,668 tons.

Output of domestic ferromanganese in September amounted to 23,206 tons against 22,045 tons in August, making the total production during the first nine months of the year 193,308 tons. Production of spiegeleisen in September was only 4,478 tons and the total for the first nine months 87,747 tons.

There is small opportunity for sales of foreign ferromanganese today because domestic producers are still ready to take orders at $110 either seaboard or furnace base. Business in spiegeleisen was light throughout the month and the market was weaker with freer offerings. Carloads were available at the end of September at $43.00 furnace for 19% to 21% and at $42.00 for 16% to 19%. Some producers, however, were still asking $2.00 a ton higher for small lots, thus the decline during the month was fully $2.00 a ton. There was very little business doing in either ferro silicon or ferro chrome and prices were largely nominal. Producers generally were asking $82.50 per ton for 50% ferro silicon delivered and, according to reports from the central west, some alloy was available as low as $80.00 delivered. The tone of the market therefore was weaker with prices about $2.50 lower than on the first of the month.

Demand for tungsten ore was much contracted and the tone of the market was weaker but there was no pressure to sell and importers were awaiting developments, expecting higher prices. At the close Chinese wolframite was held at $8.25 to $8.50 per unit, high grade wolframite at $8.75 to $9.00 a unit and high grade scheelite at $9.50 to $10.00 per unit. Ferro tungsten was held at 88c to 90c for lump and 95c for granulated and 98c for powdered. Ferro chromium was quiet and unchanged and there was very little done in chrome ore, Indiana being held at $19.50 and Rhodesian at $21.50 per ton c.i.f. Atlantic ports.

COAL

The termination of the anthracite strike, which had been anticipated as a possible stimulant to the demand for soft coal, was more or less of a blow to the bituminous branch of the coal trade, and at the close of September, the coal market in general was described as being "in a state bordering on stagnation, with buyers in many instances declining even to listen to bargain quotations."

Throughout the country, owing to the reaction following settlement of the hard coal strike, and the mild weather, the buyers have assumed an attitude of indifference toward coal purchases.

The anthracite strike settlement came early in September and mining in the hard coal fields was resumed on September 19th. Although a comparatively small amount of hard coal was produced in the remaining days of September, it had the effect nevertheless of curtailing a demand for bituminous coal and coke for domestic purposes, thus putting an immediate damper on the hopes of the bituminous operators and wholesalers who had hoped to capitalize on the hard coal strike by furnishing suitable bituminous lump coals as substitute fuel for anthracite. The termination of the strike came, however, before any such demand had had time to get under way, so that during the month of September there was no sign of any improvement in the spot prices

for bituminous coals, and October opened with the soft coal market about at its lowest point from the standpoint of spot prices and demand.

Following the anthracite settlement (which, by the way is generally regarded as no settlement but a surrender to organized labor) retail dealers at once seemed sure that they will, in time, get all the anthracite coal they need, and therefore lost interest in bituminous.

Prices therefore, have weakened so that they are lower now than they were at any time prior to the strike. In the east, conditions seem to have gone from bad to worse. In New England, in the last week in September, industrial consumers had chances to buy at decided price concessions, but failed to respond.

Because of softening in spot prices on West Virginia coals at the Hampton Roads piers, the New England buyers are losing interest in Pennsylvania bituminous coals, sales of which have been at an extremely low point.

Some pool 1 coal at the Hampton Roads piers, in distress because of accumulated demurrages, was sold early this month as low as $4.50 and $4.60 gross ton, and pool 2, also in distress, sold at $4.00 and $4.10 at these piers.

The general range of the market is about $4.75 to $5.00 gross ton, f. o. b. piers for pool, with pool 2 at about $4.50 to $4.75. These run of mine coals, in the West Virginia fields, are selling at from $2.50 to $3.00 net ton at the mines for inland shipment.

Reports from the smokeless fields indicate that low volatile coal has been feeling the effect of the strike settlement, both in curtailed demand and price recessions. However, production is restricted more on account of car shortages than absence of buying.

In Chicago the industrial demand is so flat as to have caused screenings to drop as much as seventy-five cents a ton during the latter days of September.

The weakness in the slack market generally is attributed to the fact that there have been a large number of orders for lump coal for shipment to the lakes, and the markets have therefore been flooded with the small sizes.

Trade is also dull at the head of the Great Lakes, but 400,000 additional tons of hard coal are looked for here before the close of navigation. That consumers are taking fairly heavy tnnages of industrial coals on contract is indicated by the fact that the bituminous rate for the country during the month of September was better than 11,000,000 net tons weekly. Industrial consumers generally are well stocked, as are also the railroads, the latter having accumulated large tonnages during the Summer months. The combination of circumstances makes for a decidedly flat market. In fact, many wholesalers are inclined to the belief that car shortages, transportation delays, or strikes would be necessary to stimulate trade, and none of these promises to develop in the near future. It is generally expected, however, that there will be strikes in all organized bituminous fields next April 1st.

Prices in Pennsylvania fields range from $2.00 to $2.25 net ton for good grades such as pools 9 and 71. Pool 10 at the mines sells for $1.85 to $2.00 and pool 11 at $1.75 or less. Most mines producing the latter grade, however, are shut down.

At the New York piers, the supply of bituminous coal runs around 2,000 to 2,500 cars daily with pool 9 selling at $5.00 to $5.25 gross ton, f. o.b. piers, and pool 10 at $4.65 to $4.90. Unclassified and undesirable grades sell as low as $4.00 gross ton at the piers.

STOCKS OF BITUMINOUS COAL

Government Report of Commercial Stocks on September 1, 1923.

Consumers of soft coal continued to add to their storage piles during August and on September 1, 1923, they had on hand approximately 56,000,000 net tons. The passing of August, 1923, brought to a close a year of practically uninterrupted accumulation of stocks, and the stock-taking as of September 1st, revealed many interesting and important facts: Stocks on that date were 4,000,000 tons larger than on August 1, 1923, 7,500,000 tons larger than on November 1, 1923, and nearly 300% larger than on September 1, 1922; the course of stocks has been constantly upward during the past 12 months, except during February; during the seven years for which records of stocks exist, the present supply has been exceeded only during the periods at the close of the war and just prior to the miners' strike of 1922.

EXPORTS OF IRON AND STEEL PRODUCTS FROM THE U. S.

Value of tonnage and non-tonnage.

	*1923	*1922	1921
Jan.	$14,866,090	$15,141,083	$137,803,395
Feb.	14,865,590	12,950,603	101,205,061
Mar.	14,543,155	18,836,718	67,870,739
April	20,146,346	17,549,618	49,609,605
May	22,681,660	17,749,475	41,365,886
June	21,242,193	18,649,816	39,975,035
July	21,582,626	14,611,858	27,639,787
Aug.	19,402,293	13,963,749	27,647,816
Sept.	.....	14,380,851	26,740,228
Oct.	.....	14,626,411	29,706,437
Nov.	.....	14,249,434	28,543,142
Dec.	.....	16,668,116	29,502,448

* Excluding machinery.

1922..	$ 188,841,433	1916..	$871,372,322
1921..	607,427,146	1915..	390,897,123
1920..	1,112,904,802	1914..	199,861,684
1919..	968,575,142	1913..	293,934,160
1918..	1,035,291,736	1912..	289,128,420
1917..	1,240,984,979	1911..	249,656,411

Tonnage Lines.

(Gross tons.)

	1923	1922	1921	1920
Jan.	123,190	160,920	547,394	333,601
Feb.	133,902	133,975	393,328	308,185
Mar.	163,920	208,843	230,635	417,216
April	177,471	198,830	162,592	395,120
May	203,389	230,062	104,072	420,359
June	171,183	212,295	119,081	402,707
July	168,558	157,169	86,523	458,866
Aug.	161,426	145,640	75,827	431,484
Sept.	.....	129,475	95,169	409,200
Oct.	.....	132,924	106,582	452,015
Nov.	.....	127,782	122,290	434,297
Dec.	.....	150,170	134,415	498,765

Yearly totals.

1922	1,986,297	1916	6,105,881
1921	2,213,042	1915	3,532,606
1920	4,961,851	1914	1,549,554
1919	4,239,837	1913	2,745,535
1918	5,338,037	1912	2,947,596
1917	6,441,760	1911	2,187,724

IMPORTS OF IRON ORE INTO THE UNITED STATES.

	1923	1922	1921	1920
Jan.	205,532	19,433	82,424	88,881
Feb.	143,702	10,016	47,466	100,105
Mar.	166,626	12,013	26,483	108,643
April	171,459	2,710	35,645	88,670
May	263,792	29,707	58,704	103,325
June	277,380	133,817	8,424	104,364
July	439,367	166,711	7,040	28,846
Aug.	267,677	171,142	24,570	174,169
Sept.	.....	127,838	4,954	73,675
Oct.	.....	*123,207	5,838	141,026
Nov.	.....	165,648	12,065	139,854
Dec.	.....	167,221	2,155	117,898

Yearly totals.

1922	1,140,463	1916	1,325,736
1921	315,768	1915	1,341,281
1920	1,273,456	1914	1,350,588
1919	476,461	1913	2,594,770
1918	787,468	1912	2,104,576
1917	971,663	1911	1,811,732

* Sept. 22 to Oct. 31.

BITUMINOUS COAL PRODUCTION

(Net tons of 2,000 lbs.)

	1923.	1922.	1921.
Jan. ...	50,178,000	37,604,000	40,270,000
Feb. ...	42,160,000	40,980,000	30,851,000
Mar. ...	46,802,000	50,167,000	30,392,000
April ..	42,564,000	15,700,000	27,553,000
May ...	46,076,000	20,601,000	33,330,000
June ..	45,490,000	22,309,000	33,896,000
July ...	45,126,000	17,003,000	30,385,000
Aug. ...	48,864,000	27,358,000	34,538,000
Sept. ..	46,700,000	39,510,000	35,127,000
Oct. ...	.....	45,141,000	43,733,000
Nov. ...	.....	45,303,000	36,020,000
Dec. ...	.....	44,500,000	30,975,000
Total	413,960,000	405,944,000	407,000,000

CONNELLSVILLE COKE.

Spot for prompt, per net ton f.o.b. ovens.

	— Furnace —			— Foundry —		
	1923.	1922.	1921.	1923.	1922.	1921
Jan.	8.30	2.85	5.10	9.25	4.00	6.75
Feb.	7.30	3.10	4.80	8.50	4.15	6.15
Mar.	7.35	3.38	4.43	8.60	4.50	5.63
Apr.	6.25	4.44	3.60	7.80	5.21	5.15
May	5.25	6.50	3.40	6.50	6.75	5.10
June	5.00	7.50	3.12	5.85	7.85	4.67
July	4.60	11.35	2.95	5.60	11.70	4.20
Aug.	4.65	13.35	2.95	5.55	15.00	4.20
Sept.	4.60	11.50	3.26	5.90	13.25	4.34
Oct.	....	9.70	3.35	....	11.90	4.40
Nov.	....	7.35	3.15	....	8.70	4.17
Dec.	....	7.75	2.90	....	8.15	4.00
Av.	....	7.40	3.58	....	8.43	4.90

BRITISH IRON AND STEEL OUTPUT.

Pig Iron—(Gross tons).

	1923	1922	1921
Jan.	567,900	288,000	642,100
Feb.	543,400	300,100	463,600
March ...	633,600	389,800	386,000
April	652,200	394,300	60,300
May	714,200	407,900	13,600
June	692,900	369,200	800
July	655,100	399,100	10,200
Aug.	599,800	411,700	94,200
Sept.	.....	430,300	158,300
Oct.	.....	481,500	235,500
Nov.	.....	493,900	271,800
Dec.	.....	533,700	275,000
Total ...	.....	4,899,500	2,611,400

Steel Ingots and Castings.

	1923	1922	1921
Jan.	624,300	327,500	493,400
Feb.	707,100	418,800	483,500
March ...	802,500	549,400	359,100
April	749,400	404,200	70,600
May	821,000	462,300	5,700
June	767,700	400,200	2,700
July	624,300	473,100	117,200
Aug.	582,700	520,800	434,100
Sept.	.....	555,900	429,300
Oct.	.....	565,200	405,400
Nov.	.....	600,800	442,800
Dec.	.....	546,100	381,000
Total ...	.....	5,831,900	3,624,800

COPPER IN SEPTEMBER

September was a most satisfactory month for the low cost producer of copper. Large production, low cost and heavy sales—although at lower prices—resulted in quite substantial profits last month. For the high cost and marginal producers the outcome was far from encouraging. Yet it is significant that not a few companies reputed to have high costs continue persistently to produce copper although prices dropped ½c a pound during the month and the decline from high levels established this year has been 4c a pound.

Sales on domestic and foreign account in September are estimated approximately 180,000,000 pounds. In the same time deliveries are estimated to have aggregated 190,000,000 pounds, including 120,000,000 pounds shipped to domestic consumers and 70,000,000 pounds exported from North and South America. Exports from the United States alone in September were probably not over 50,000,000 pounds while from other North American and South American mines approximately 20,000,000 pounds were shipped abroad.

In August exports were approximately 64,000,000 pounds, the August foreign shipments being the largest of any month since January, but September exports are indicated to have been the smallest since May, that is, from the United States alone.

Imports this year have averaged about 51,500,000 pounds a month, indicating a total for the first nine months of 483,500,000 pounds. Exports during the same period, including finished copper, averaged about 61,500,000 pounds a month. Thus exports exceeded imports by only about 10,000,000 pounds a month. This surplus, however, is excessive because exports include finished products, the copper for which was included in deliveries to domestic consumers. The indication, therefore, is that, after making allowance for this duplication, exports have exceeded imports this year at the rate of only about 5,000,000 pounds a month. Imports have been steadily growing, arrivals in the first nine months of this year being about 35% in excess of the arrivals during the corresponding period last year.

Refined output in September is estimated approximately 200,000,000 pounds, making the total production in the first nine months of the year about 1,628,000,000 pounds. Deliveries into domestic and foreign consumption in September are estimated 190,000,000 pounds and the total in the nine months 1,680,000,000 pounds. Thus there was an indicated increase in surplus stocks in September of 10,000,000 pounds while in the first nine months deliveries exceeded refined output by about 52,000,000 pounds, indicating stocks on October 1st of about 246,000,000 pounds.

It is quite evident from the above showing that there is too much copper coming upon the market to maintain selling prices even at 14.00c a pound. The statistics make clear why copper again receded ½c a pound in September and 4c a pound since early in the year.

Another development which is giving concern to producers of copper is the evidence that home consumption has been falling off for several months and large consumers have reduced operations 15% to 20% as compared with the first half of the year. This fact is made impressive by the further reduction in base prices of copper, brass and bronze products and also in a reduction in the discounts from lists.

COPPER IN SEPTEMBER

Day	New York — Lake.	Electro.	Cast.	London — Stand.	Electro.
				£ s. d.	£ s. d.
3	.....	.....	.....	63 7 6	68 10 0
4	14.00	13.75	13.62½	64 5 0	69 0 0
5	14.00	13.75	13.62½	64 5 0	69 5 0
6	14.00	13.75	13.62½	64 5 0	69 5 0
7	14.00	13.75	13.62½	64 2 6	69 5 0
10	14.12½	13.80	13.62½	63 17 6	69 5 0
11	14.12½	13.80	13.62½	63 15 0	69 5 0
12	14.12½	13.80	13.62½	63 5 0	69 0 0
13	14.12½	13.75	13.55	63 0 0	68 15 0
14	14.12½	13.65	13.50	62 15 0	68 10 0
17	14.00	13.55	13.37½	62 7 6	68 0 0
18	13.87½	13.40	13.25	62 2 6	67 15 0
19	13.75	13.35	13.12½	62 2 6	67 10 0
20	13.75	13.40	13.12½	62 7 6	67 10 0
21	13.75	13.45	13.25	63 0 0	67 15 0
24	13.87½	13.50	13.25	63 2 6	67 15 0
25	13.87½	13.60	13.31¼	63 15 0	68 0 0
26	13.87½	13.50	13.25	63 5 0	67 10 0
27	13.87½	13.43¾	13.25	62 15 0	67 0 0
28	13.75	13.40	13.15	62 2 6	66 15 0
High ..	14.25	13.85	13.62½	64 5 0	69 5 0
Low ...	13.75	13.30	13.12½	62 2 6	66 15 0
Av'ge .	13.95	13.60	13.41	63 3 10	68 5 6

An interesting fact is that notwithstanding recent large sales of copper for export, especially to Europe, our exports thus far in 1923 have amounted to only 34% of total refined production in North and South America. In previous years copper producers have been almost certain of selling 40% to 45% of their output abroad. In 1922 45% of total production was exported, in 1921 as high as 53%, but 1920 was an exception when less than 30% went abroad. Before the war our exports ranged from 40% to 47% of total production. Of the 34% shipped abroad during the first nine months of this year 23½% went to Germany, less than 22% went to France, and 21% to Great Britain.

Under the circumstances it is a matter of considerable concern to producers that domestic consumption, which has been the mainstay of the producers this year, is now decreasing and from present indications it will further fall off in the last quarter of the year. The average rate of domestic consumption in the first half of the year is estimated 120,000,000 pounds a month. Today it is doubtful if 100,000.000 pounds is being utilized and a further reduction may carry consumption down to 80,000,000 pounds monthly, but even this rate would be considered satisfactory were it not for the decreased consumption in Europe. Unsettled political events have militated against larger exports of American copper, and there is still grave doubt of settled conditions politically, industrially or socially in central Europe and the near East during the remainder of this year.

The reduction of ½c to 1c a pound in prices of finished products, that is, in base prices, and a reduction of 15% in extras, reflects the effort to stimulate renewed buying by home consumers. The result will not be fully apparent for another month but at the moment the outlook is not very encouraging. In the last sixty days prices of finished products have receded 1½c to 3c a pound without stimulating purchases.

To obtain a comprehensive review of prices in September it should be noted that electrolytic at the beginning of the month was being sold by producers at 13.75c to 13.87½c delivered. These prices, which were the highest of the month, held well during the first fortnight, after which there was a recession

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Dallas Brass & Copper Co.

Manufacturers of

Brass and Copper Products

Prompt Mill Deliveries

Prompt Shipments From Warehouses

CLEVELAND CHICAGO DETROIT

WATERBURY COPPER AVERAGES

	1923.	1922.	1921.	1920.	1919.
Jan. ..	14.87½	13.87½	13.75	19.50	23.00
Feb. ..	15.75	13.37½	13.50	19.12½	18.00
Mar. ..	17.25	13.12½	12.62½	18.87½	15.50
Apr. ..	17.12½	13.00	12.75	19.12½	15.50
May ..	16.12½	13.37½	13.12½	19.00	16.37½
June ..	15.25	14.00	13.12½	18.50	17.75
July ..	15.00	14.12½	12.87½	19.00	22.00
Aug. ..	14.50	14.12½	12.25	18.75	23.00
Sept. .	14.00	14.25	12.37½	18.75	22.50
Oct. ..	.....	14.25	13.12½	16.87½	22.25
Nov. ..	.....	14.12½	13.37½	15.25	21.00
Dec. ..	.....	14.50	13.87½	14.25	18.75
Av. ...	.....	13.84	13.06	18.06	19.63½

Annual Averages.

1918.....	24.75	1913.....	15.83
1917.....	30.11	1912.....	16.71
1916.....	28.85	1911.....	12.75
1915.....	18.94	1910.....	13.13
1914.....	13.91	1909.....	13.41

IMPORTS OF COPPER.

As compiled by the New York Metal Exchange and reduced to fine copper, in tons of 2,240 lbs.

	1923.	1922.	1921.	1920.
Jan.	16,500	5,500	17,500	16,500
Feb.	17,000	10,000	18,000	20,000
Mar.	23,500	15,000	10,000	17,500
April	15,500	16,000	15,500	12,000
May	34,000	12,000	7,000	23,000
June	28,500	19,000	9,000	22,000
July	23,000	19,500	14,000	12,000
Aug.	.....	21,000	10,000	13,000
Sept.	.....	25,000	10,500	12,500
Oct.	.....	18,000	14,500	14,500
Nov.	.....	33,000	11,000	16,000
Dec.	.....	26,000	14,000	17,500
Totals ...	.....	220,000	151,000	196,500

EXPORTS OF COPPER.

As compiled by the New York Metal Exchange from Custom House returns, in tons of 2,240 lbs.

	1923.	1922.	1921.	1920.
Jan.	23,409	24,679	24,068	21,804
Feb.	21,643	22,910	27,748	25,700
Mar.	28,284	35,851	17,151	39,236
April	28.225	28,367	18,397	28,644
May	25,911	27,894	15,736	37,090
June	27,017	29,191	22,339	25,581
July	27,516	28,584	22,774	20,430
Aug.	28,627	26,889	19,110	20,121
Sept.	15,354	25,144	28,343	10,751
Oct.	.....	22,681	22,934	10,073
Nov.	.....	24,727	32,407	16,954
Dec.	.....	22,201	27,394	18,304
Total	.....	319,118	278,401	274,688

Annual Totals.

1919	227,169		
1918	328,844	1913	382,810
1917	493,256	1912	327,965
1916	327,310	1911	336,801
1915	270,704	1910	301,935
1914	360,229	1909	301,657

LAKE COPPER PRICES

Average prices in N. Y.—delivered.

	1923.	1922.	1921.	1920.	1919.
Jan. ...	14.92	13.76	13.53	19.76	21.75
Feb. ...	15.76	13.24	13.33	19.09	17.87
Mar. ...	17.26	13.03	12.58	18.87	15.48
April ..	17.13	12.91	12.89	19.05	15.73
May ...	16.12	13.42	13.12	18.85	16.30
June ...	15.24	13.97	13.04	18.55	17.93
July ...	14.95	14.07	12.75	18.83	22.08
Aug. ...	14.39	14.09	12.11	18.72	22.96
Sept. ..	13.95	14.19	12.23	18.53	22.48
Oct.	.....	14.16	13.01	16.87	21.94
Nov. ...	.....	14.07	13.30	14.97	20.49
Dec. ...	.....	14.46	13.80	14.01	18.88
Average	.....	13.78	12.98	18.01	19.49

Annual Averages.

1918	24.68	1913	15.70
1917	29.18	1912	16.58
1916	28.17	1911	12.71
1915	17.64	1910	13.12
1914	13.61	1909	13.39

ELECTROLYTIC COPPER PRICES

Average prices in N. Y.—f.o.b. refinery.

	1923.	1922.	1921.	1920.	1919.
Jan. ...	14.66	13.60	12.85	19.02	20.00
Feb. ...	15.50	12.97	12.79	18.61	16.91
Mar. ...	16.95	12.84	12.23	18.36	15.01
April ..	16.81	12.71	12.54	18.54	15.40
May ...	15.63	13.29	12.83	18.28	16.01
June ...	14.88	13.71	12.76	17.97	17.65
July ...	14.59	13.90	12.35	18.61	21.71
Aug. ...	14.05	13.96	11.76	18.44	22.22
Sept. ..	13.60	13.88	12.10	18.04	21.95
Oct.	.....	13.80	12.75	16.30	21.50
Nov. ...	.....	13.79	13.16	14.39	19.96
Dec. ...	.....	14.22	13.67	13.48	18.48
Average	.....	13.55	12.65	17.50	18.90

Annual Averages.

1918	24.68	1913	15.52
1917	29.19	1912	16.48
1916	28.46	1911	12.55
1915	17.47	1910	12.88
1914	13.31	1909	13.11

CASTING COPPER PRICES

Average prices in N. Y.—f.o.b. refinery.

	1923.	1922.	1921.	1920.	1919.
Jan. ...	14.30	12.96	12.61	18.81	18.48
Feb. ...	15.15	12.61	12.45	18.21	16.45
Mar. ...	16.64	12.54	11.83	18.11	14.82
April ..	16.60	12.46	11.82	18.40	15.06
May ...	15.45	12.84	12.24	18.16	15.49
June ...	14.57	13.33	12.08	17.65	17.17
July ...	14.30	13.34	11.68	18.12	21.10
Aug. ...	13.81	13.43	11.43	18.00	21.71
Sept. ..	13.41	13.39	11.75	17.76	21.28
Oct.	.....	13.39	12.43	16.01	20.66
Nov. ...	.....	13.40	12.53	14.12	19.37
Dec. ...	.....	13.81	12.97	13.12	18.21
Average	.....	13.13	12.15	17.21	18.32

Annual Averages.

1918	24.68	1914	13.18
1917	27.64	1913	15.33
1916	26.51	1912	16.29
1915	16.76	1911	12.42

BRASS AND COPPER PRODUCTS.

The last two price lists issued follow:

COPPER PRODUCTS.

	Aug. 22	Sept. 18
Sheet copper	22¼	21¾
Copper bottoms	30¾	30¼
Copper in rolls	20¼	19¾
Brush copper	23¼	22¾
Sawed copper	23	22½
Drawn copper shapes	20¾	20¼
Commutator copper	22	21½

BRASS PRODUCTS.

Sheet Metal.

High brass	18½	18
Low brass	20¼	19¾
Rich low brass	20¾	20¼
Commercial bronze and gilding	22	21½
Best spring drawing and spinning brass	19½	19

Wire.

High brass	19	18½
Low brass	20¾	20¼
Commercial bronze and gilding	22½	22
Best spring and brazing brass	20	19½

Rods.

High brass (free turning)	16¾	15¾
Low brass	21	20½
Commercial bronze	22¾	22¼

Brazed Tubes.

Brass	26½	26
Copper and commercial bronze	31¾	31¼
Open seam brass	26½	26
Open seam copper and commercial bronze	31¾	31¼

Seamless Tubes.

High brass	24	23
Low brass	26	25
Commercial bronze	27	26
Copper	25½	24½

NICKEL SILVER.

10% grade A sheet metal	26	25½
15% " " " "	27½	26¾
18% " " " "	28½	28
25% " " " "	38¾	38¼
5% grade B sheet metal	24	23½
10% " " " "	25½	25
12% " " " "	26¼	25¾
15% " " " "	27	26½
18% " " " "	28	27½
25% " " " "	38½	38
5% wire and rod	26	25½
10% " " "	29	28½
12% " " "	30½	30
15% " " "	32½	32
18% " " "	35½	35

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of ¼c to ⅜c a pound. The decline was quick and sharp for several days and at the end of the third week electrolytic was being sold at 13.37½c to 13.50c, followed by a recovery of ⅛c which was not maintained and when the month closed producers were finding it difficult to sell electrolytic even at 13.37½c delivered. Lake copper was quotable at 13.62½c to 13.75c delivered and casting at 13.12½c f.o.b. refinery. This was a decline of about ⅜c on lake, about ½c a pound on casting and ⅜c to ½c a pound on electrolytic. The highest prices this year were established in March when electrolytic sold at 17.37½c a pound.

COPPER AND BRASS PRODUCTS

September brought about a decided improvement of buying of rolled, drawn and cast copper, brass and bronze products as compared with the three preceding months, June, July and August, yet the prices of finished products sympathized with those for unwrought copper which tended downward throughout the month. In fact it was the low prices which stimulated buying, especially during the last fortnight of September, after finished prices had further receded ½c. to 1c. a pound.

It will be recalled that during the first four months of this year there was unusual activity in practically all forms of non-ferrous metal finished products, and most of the large manufacturers had enough business to keep them busy for four or five months. Subsequently, as buying fell off and prices receded new bookings were relatively light, but as shipments continued heavy, the mills were able to reduce largely arrears of shipments against contracts. In the Summer months most of the mills had worked into very easy positions. The largest interest as a whole operated at the rate of 80% of capacity, while some of the smaller manufacturers were able to operate only about 60% of capacity.

Today the copper and brass mills are probably operating at an average rate of 75% to 80% of capacity, but some departments are not operating more than 50% to 60% of capacity, yet even these rates are an improvement over the dullness during the Summer. Wire mills and cable plants are among the busiest industries. Following the large orders

placed by the telegraph and telephone companies in August, which developed keen competition, there was a fair run of small orders. Some of the wire drawers and cable manufacturers have enough business on their books, however, to carry them at the present rate of operations through the remainder of the year.

It is reported that the American Brass Company in September had an output of finished products aggregating 38,000,000 pounds, this amount being about 20% less than the average monthly rate in the Spring. On September 19th the American Brass Company announced a reduction of ½c. to 1c. per pound on prices of wrought copper, brass and bronze products, being the third such decline in less than sixty days. The official list carried a reduction of 1c. a pound on all seamless brass, copper and bronze tubing and high brass rods, while all other wrought products made from copper, brass and bronze were reduced ½ cent.

Subsequently there was a further fractional decline in the price of bare wire and black rods. The first decline was made effective September 18th while the subsequent decline in wire and rods, brought about as a result of keener competition among manufacturers, was made without any specified date being named.

On the last business day of September the American Brass Company announced a reduction in extras effective on all orders received September 28th and later. The new discount is 25% from price list, effective on brass, copper and nickel silver materials, with delivered, and in consequence a further weaker in sympathy with unwrought the exception of seamless tubes and copper anodes. No discount is allowed on the two latter products while the discount on all others was 25% against a previous discount of 10%. Polishing and tinning sheet copper discount reof the market for finished products was copper which again declined to within mains 10%.

At the beginning of October the tone ⅛c of the lowest price made this year.

Producers found it difficult to secure orders for electrolytic even at 13¼c downward revision in prices of wrought copper and brass, bronze and nickel silver is expected in the near future.

It should be noted that the prices listed on various finished products are those at which manufacturers are willing to sell small lots to small consumers. Mill prices on larger amounts are fully half a cent lower and in some instances, such as copper sheets, mill prices for round lots are fully one cent a pound under the outside price quoted in the table.

TIN IN SEPTEMBER

The tin market in September was an irregular one, being subject to sharp price advances and reactions in London which our market followed in a languid way. The previous month had been an almost steady advance throughout the month of 2.25c. In September, in spite of irregularity, the market, showed an improvement in price of nearly 1c per lb., and but for lack of encouragement from American buyers and large selling from sources of production, there is every evidence that the advance of the previous month would have been more than duplicated, by reason of the operations of interests working in London for higher prices.

After closing in August at 40.62½c, our market opened on September 4th after the Labor Day holidays at 41.50c for spot Straits, advancing three days later to 42.12½c in sympathy with a rise in London and favorable monthly

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TIN IN SEPTEMBER

Day	New York Straits	99%.	London Stand. £ s. d.	Straits. £ s. d.	Singapore Straits. £ s. d.
3 ...	.....	.....	194 15 0	198 15 0	197 5 0
4 ...	41.37½	40.75	197 5 0	201 5 0	200 0 0
5 ...	41.37½	40.75	198 0 0	202 0 0	203 5 0
6	41.87½	41.25	200 5 0	204 5 0	203 5 0
7 ...	42.12½	41.37½	201 0 0	205 0 0	205 0 0
10 ...	42.00	41.37½	199 0 0	202 15 0	204 10 0
11 ...	42.25	41.50	198 10 0	202 5 0	203 10 0
12 ...	42.25	41.62½	199 5 0	203 5 0	203 15 0
13 ...	41.50	41.00	195 17 6	199 17 6	204 10 0
14 ...	41.00	40.50	193 10 0	197 10 0	201 0 0
17 ...	41.00	40.37½	193 10 0	197 10 0	198 15 0
18 ...	41.50	41.00	197 5 0	201 5 0	199 10 0
19 ...	41.50	41.00	198 2 6	202 2 6	201 10 0
20 ...	41.25	40.75	198 0 0	202 0 0	201 15 0
21 ...	41.12½	40.62½	197 10 0	201 10 0	200 15 0
24 ...	42.12½	41.50	202 10 0	206 0 0	201 5 0
25 ...	42.37½	41.75	203 5 0	206 15 0	203 15 0
26 ...	41.75	41.12½	200 5 0	203 15 0	203 0 0
27 ...	41.25	40.75	198 10 0	202 0 0	201 15 0
28 ...	41.37½	40.87½	199 0 0	202 10 0	202 0 0
High	42.37½	41.75	203 5 0	206 0 0	204 10 0
Low .	41.00	40.37½	193 10 0	197 10 0	197 5 0
Av'ge	41.63	41.05	198 5 3	202 2 3	202 0 0

MONTHLY TIN STATISTICS

As published by the New York Metal Exchange in tons of 2,240 pounds:

	Sept. 1923.	Aug. 1923.	Sept. 1922.
Supplies—			
Straits	6,415	5,190	4,730
Australian	70	95	45
Banka and Billiton	1,073	1,196	769
Chinese	704	632	1,104
Standard	980	836	203
	9,242	7,949	6,851
Deliveries—			
U. K. all kinds	1,784	1,538	1,721
U. S. A. all kinds	4,540	5,510	5,050
Continent, all kinds	1,808	2,166	1,714
	8,132	9,214	8,485
Increase in total visible supply	1,110	*1,265	*1,634
Stocks—			
U. K. all kinds	3,038	4,001	7,032
U. S. A. all kinds	2,362	2,887	1,236
Continent, all kinds	1,983	2,116	2,587
	7,383	9,004	10,855
Afloat—			
U. K. all kinds	1,472	1,170	720
U. S. A. all kinds	10,079	7,210	9,272
Continent, all kinds	930	1,370	2,136
	12,481	9,750	12,128
Tot. visible supply	19,864	18,754	22,983

* Decrease.

STRAITS TIN PRICES.

Average prices of Straits tin for prompt delivery in New York.

	1923.	1922.	1921.	1920.	1919.
Jan.	39.17	32.11	36.11	62.89	72.50
Feb.	42.03	30.82	32.47	60.00	72.00
Mar.	48.65	29.17	28.85	61.99	71.75
April	45.87	30.65	30.41	62.20	72.26
May	43.16	30.97	32.52	55.07	71.94
June	41.00	31.54	29.57	48.62	71.20
July	38.48	31.82	27.69	49.37	70.39
Aug.	39.39	32.43	26.40	47.69	63.78
Sept.	41.63	32.40	26.73	44.62	55.81
Oct.	.....	34.64	27.74	40.64	55.62
Nov.	.....	36.72	29.02	37.02	54.17
Dec.	.....	37.68	32.49	34.15	55.06
Average	.....	32.58	30.00	50.36	65.54

Yearly Averages.

1919	65.54	1914	35.70
1918	86.80	1913	44.32
1917	61.65	1912	46.43
1916	43.48	1911	42.68
1915	38.66	1910	34.27

TIN DELIVERIES IN UNITED STATES

Monthly deliveries of tin in United States, exclusive of domestic refined tin, in tons of 2,240 pounds.

	†1923.	1922.	1921.	1920.	1919.
Jan.	6,625	4,275	1,555	3,910	1,850
Feb.	6,185	3,215	1,585	5,200	2,459
Mar.	6,634	6,030	1,683	5,130	2,070
April	6,775	4,995	1,590	3,305	36
May	6,035	4,740	1,225	3,550	20
June	5,410	5,130	1,590	6,500	68
July	5,305	4,590	1,525	5,530	132
Aug.	5,510	4,150	3,320	3,745	4,345
Sept.	4,540	5,050	2,605	4,860	4,825
Oct.	.....	5,603	2,280	3,415	2,875
Nov.	.....	4,812	3,250	3,395	6,665
Dec.	.....	4,870	3,710	2,580	6,965
Total	.....	57,460	25,918	51,120	32,301

VISIBLE SUPPLY OF TIN

World's visible supply of tin at end of each month in tons of 2,240 pounds.

	†1923.	1922.	1921.	1920.
Jan.	25,765	26,216	18,994	21,056
Feb	25,157	25,047	17,074	21,586
Mar.	24,622	22,353	16,073	18,305
April	22,116	22,017	15,670	19,342
May	22,187	22,910	18,352	20,976
June	21,297	23,566	17,968	18,851
July	20,019	21,502	20,316	18,546
Aug.	18,754	24,176*	19,358	19,858
Sept.	19,864	22,879*	21,189	18,096
Oct.	.....	22,902	23,349	19,964
Nov.	.....	25,286	22,806	19,823
Dec.	.....	24,930	25,220	19,410
Average	.....	23,649	19,697	19,726

* Includes current shipments of Banka and Chinese to U. S.

Annual Averages.

1919	12,890	1914	14,907
1918	13,894	1913	12,377
1917	18,803	1912	13,207
1916	18,585	1911	16,404
1915	15,208	1910	18,815

TIN SHIPMENTS FROM STRAITS

(Tons of 2,240 lbs.)

	†1923.	1922.	1921.	1920.	1919.
Jan.	6,255	5,515	1,055	3,910	3,340
Feb.	4,655	3,640	240	4,810	2,860
Mar.	6,020	4,985	915	2,795	2,254
April	4,490	5,350	1,800	3,872	1,127
May	5,535	6,420	3,667	4,930	1,704
June	5,390	6,505	1,425	4,261	1,629
July	5,025	4,035	3,975	3,865	7,302
Aug.	5,190	5,855	5,165	3,798	8,829
Sept.	6,415	4,050	5,300	4,529	5,465
Oct.	.....	5,650	4,525	3,340	4,431
Nov.	.....	6,145	4,065	2,630	4,135
Dec.	.....	4,635	5,920	2,225	6,677
Total	.....	62,785	36,052	44,965	49,763

Annual Totals

1918	*55,000	1914	63,093
1917	62,366	1913	62,550
1916	61,587	1912	59,318
1915	66,517	1911	55,470

† **Note**—London Metal Exchange statistics * Estimated.

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statistics, remaining steady until September 13th, when London in the next two days declined nearly £6 per ton, bringing our market to 41c. On September 24th another sharp rise in London of £5 put our price again to 42.12½c, but the market later declined to 41.37½c at which the month closed.

The highest price during the month was 42.37½c, lowest 41c, and the average for the month was 41.62½c.

With the exception of some large buying by American consumers for future delivery on September 10th, the buying by our consumers throughout the month was very small, and the reactions that followed advances in London served to disturb confidence, giving indications that the London fluctuations were influenced by speculation and not from any change in the fundamentals of the metal.

The large sales during the month in Singapore were disturbing to the London bulls, and their arguments that the situation was improved by these sales, bringing invisible stocks into the visible and thus reducing the invisible stocks were not altogether convincing. It has since been officially announced in London that up to and including September 25th the Federated Malay States Government had sold 2,000 tons of its stock of tin. When the Bandoeng agreement was revised in April, the different parties holding tin under this agreement were permitted to sell 5% of their stock per month commencing April 1st, and until lately it was understood that the F.M.S. Government was refraining from selling. The large sales in Singapore this month gave rise to the report that the government had started to liquidate, and as their total holdings amounted to about 10,000 tons, recent announcement shows that they have disposed of about two-thirds of the tonage that they were at liberty to sell during the past six months. It is believed that the Dutch government and the Straits Trading Company, who were the other parties to the Bandoeng agreement, have been selling their quota right along and, therefore, the surplus stocks in the East are now estimated as being between 14,000 and 14,500 tons.

The supposition is that the F. M .S. government sold nearly all of their 2,000 tons this month after the price crossed £200, having adopted the policy of withholding supplies on a declining market and liquidating only when the market showed that it was in a position to absorb the supplies at over £200.

The little interest the American consumer has shown lately is attributed partly to their doubts as to what is to be the demands made on them during the balance of the year, business this month showing a tendency to fall off. But the probable greater reason is that the enormous amount of tin they took during the first half of the year has put both themselves and their customers in an easy position as regards stocks, and being fairly well booked on metal to reach them for future delivery are in a position to look on until what the trend of business for the balance of the year becomes clearer than it is at present.

The American deliveries of tin in September were 4,540 tons and as the amount of tin refined in this country during September was negligible, this represents practically the entire deliveries. For the first seven months of this year the deliveries of foreign tin averaged 6,160 tons per month which plus the American output of refined tin brought the average to above 6,800 tons or 50% above September.

The September deliveries were the smallest in a year and a half, but owing to the large deliveries prior to September, the total for the nine months amounts to 53,019 tons as against 43,175 tons during the corresponding period in 1922 and 47,650 tons in 1918 which was the previous high record.

Monthly deliveries of tin in United States, exclusive of domestic refined tin, in tons of 2,240 pounds.

	1923.	1922.	1921.	1920.	1919.
Jan. ...	6,625	4,275	1,555	3,910	1,850
Feb. ...	6,185	3,215	1,585	5,200	2,450
Mar. ..	6,634	6,030	1,683	5,130	2,070
April ..	6,775	4,995	1,590	3,305	36
May ..	6,035	4,740	1,225	3,550	20
June ..	5,410	5,130	1,590	6,500	68
July ...	5,305	4,590	1,525	5,530	132
Aug. ..	5,510	5,150	3,320	3,745	4,345
Sept. ..	4,540	5,050	2,605	4,860	4,825
Oct. ...	.....	5,603	2,280	3,415	2,875
Nov. ...	.....	4,812	3,250	3,395	6,665
Dec. ...	.....	4,870	3,710	2,580	6,965
Total .	53,019	57,460	25,918	51,120	32,301

American Stocks on September 30th.

The stocks of tin in warehouse and on dock in the port of New York on Sep-

tember 30th amounted to 2,360 tons of which 1,260 tons were in warehouse and 1,100 tons on dock or landing. On August 31st the New York stocks amounted to 2,887 tons.

The statistics issued October 2nd showed an increase in the world's visible supply of 1,100 tons as against a decrease of about the same amount showed September 1st and stand at 19,864 tons.

It is estimated that an invisible supply exists of around 14,000 tons of which about 8,000 tons is held by Malay Government.

Compared with a year ago it is believed that the invisible supply has decreased 10,000 tons and this is the strongest bull point in the market. It will largely depend on America as to whether this decrease in the invisible will continue.

ZINC IN SEPTEMBER

The zinc market in September was a quiet one, dullness being interrupted at times by the placing of orders for export, but which orders were about the only support the market received, purchases by American consumers being small.

The labor troubles at smelters that existed during the first three weeks of the month, and the fact that the costs of ore and labor prevented smelters getting a new dollar for an old one and, therefore, were reluctant sellers, offset the small buying from consumers and kept prices fairly steady.

The opening price for prime western for September was 6.50c, highest 6.57½c, lowest 6.30c, closing 6.32½c, average for the month 6.46c.

About this time of the year there is generally a good demand from the sheet galvanizers but same has not developed so far.

Hopes were indulged in that the Japanese calamity would have brought a large demand to this country for galvanized sheets for reconstruction, but up to the present this has not been the case, Japan filling mos tof their needs in England. Mail advices from England report heavy bookings of galvanized sheets for Japan, and state that the manufacturers in England are virtually sold out for the balance of the year. This explains the orders from England for zinc in this market.

The fact that passive resistence has ceased in the Ruhr has had no effect. Had it restored business in the Ruhr and thus helped other non-ferrous metals, it was not likely to be favorable for zinc, as it is estimated that there are stocks of 10.000 tons of zinc which Germany is unable to move and which might become available.

The statistics published about the middle of September showed that stocks increased some 5,231 tons during August but during the month a good deal of zinc was exported and as some of the smelters were closed by labor troubles, the general expectation is that during September there has probably been a decrease in the stocks of about 4,000 tons.

A reported movement of the zinc mines in the Joplin district (Oklahoma, Kansas and Missouri) is on foot to close down for a week in the early part of October for the ostensible purpose of maintaining the price of ore on a $40.00 basis. It is interesting to note that nothing has come of this movement yet, and the price of ore has since declined to $38.00.

LEAD AND ZINC PRICES IN SEPTEMBER

Day	LEAD				ZINC		
	New York *	New York †	St. Louis †	London £ s d	New York §	St. Louis §	London £ s d
1	6.75	6.80	6.67½	.....	....	....	.....
3	....	....	....	25 2 6	....	....	33 0 0
4	6.75	6.80	6.67½	25 10 0	6.85	6.50	33 12 6
5	6.75	6.80	6.72½	25 17 6	6.87½	6.52½	33 15 0
6	6.75	6.80	6.72½	26 0 0	6.90	6.55	33 17 6
7	6.75	6.80	6.72½	25 17 6	6.87½	6.52½	34 0 0
8	6.75	6.80	6.72½	.....	....	....	.....
10	6.75	6.80	6.72½	25 12 6	6.87½	6.52½	33 12 6
11	6.75	6.80	6.72½	25 5 0	6.90	6.55	33 12 6
12	6.75	6.80	6.72½	25 15 0	6.90	6.55	33 15 0
13	6.85	6.90	6.80	25 15 0	6.87½	6.52½	33 12 6
14	6.85	6.90	6.80	25 15 0	6.82½	6.47½	33 2 6
15	6.85	6.90	6.80	.....	....	....	.....
17	6.85	6.90	6.77½	25 12 6	6.80	6.45	32 17 6
18	6.85	6.90	6.77½	25 7 6	6.77½	6.42½	32 15 0
19	6.85	6.90	6.77½	25 7 6	6.75	6.40	32 2 6
20	6.85	6.90	6.75	25 10 0	6.75	6.40	33 5 0
21	6.85	6.90	6.75	25 10 0	6.75	6.40	33 10 0
22	6.85	6.90	6.75	.....	....	....	.....
24	6.85	6.90	6.72½	25 12 6	6.75	6.40	33 17 6
25	6.85	6.90	6.72½	25 15 0	6.77½	6.42½	33 17 6
26	6.85	6.97½	6.72½	26 0 0	6.75	6.40	33 17 6
27	6.85	6.97½	6.70	26 5 0	6.72½	6.37½	33 5 0
28	6.85	6.97½	6.70	26 5 0	6.67½	6.32½	33 0 0
29	6.85	6.97½	6.70	.....	....	....	.....
High	6.85	7.10	6.85	26 5 0	6.92½	6.57½	34 0 0
Low	6.75	6.75	6.65	25 2 6	6.65	6.30	32 15 0
Av.	6.81	6.87	6.74	25 13 9	6.81	6.59	33 9 4

* A. S. & R. price.
† Outside market. § Prime Western.

JOPLIN ZINC AND LEAD ORE

Review for September, 1923.

Shipments of zinc blende aggregated 67,226 tons for the month of September, with a valuation of $2,651,340. The month opened with an average price of $40.00. This price was maintained for the first three weeks of the month, when the price dropped to $38.00. The average price for the entire month was $39.44. Weekly shipments averaged 13,445 tons.

This compares with an average price for the same period last year of $38.03 or a difference of $1.41. The shipments of one year ago approximately 42,651 tons, an average of 8,550 tons per week.

Shipments this month were the largest since June, and were 7,732 tons or a weekly average of 1,546 tons. The month opened with lead selling at $85.00, then rose to $87.00 and the month closed with a very weak market at $83.00. The average for the month was $85.31. This compares with an average price of $82.74 for the same period last year, and a total shipment of 7,526 tons.

At a meeting of the operators the latter part of the month, a plan was approved and adopted whereby the old curtailment plan of a five-day week was discontinued and for the remainder of the year mills will be operated only three weeks per month, remaining down the first week in October, the first week in November and the first week in December. In this manner it is thought that mills can be operated more economically than by the five-day per week plan. The probable cost of producing a ton of ore in the tri-state district is estimated to be around $42.00 and it is only the strength of the lead ore market which has made it possible to operate and break even.

The surplus zinc ore stock in the district is estimated to be in the neighborhood of 50,000 tons. There is practically no surplus lead.

U. S. ZINC STATISTICS.

From the monthly reports of the American Zinc Institute, in tons of 2,000 lbs.

	Production		Deliveries	
	1923.	1922.	1923.	1922.
Jan. ..	23,706	25,916	24,636	21,021
Feb. ..	42,443	22,513	48,153	24,067
Mar. ..	48,731	26,532	49,574	30,394
April .	46,866	25,506	47,911	34,040
May ..	47,347	27,419	43,304	38,738
June ..	42,840	28,547	38,686	39,380
July ...	43,065	31,917	38,998	32,875
Aug. ..	41,625	31,423	36,394	38,412
Sept. ..	.....	33,134	.....	35,957
Oct. ..	.....	39,940	.....	40,703
Nov. ..	.....	40,200	.....	38,746
Dec. ..	.....	42,841	.....	44,086
Total	.....	373,678	.....	422,034

	Stocks at Smelters*		Retorts in Operation*	
	1923.	1922.	1923.	1922.
Jan. ..	16,574	65,678	84,131	44,457
Feb. ..	10,864	64,124	86,931	43,357
Mar. ..	10,021	60,262	89,054	45,373
April .	8,976	51,728	89,203	42,773
May ..	13,019	40,409	86,731	48,765
June ..	17,173	29,576	84,455	52,677
July ..	21,240	28,618	82,075	54,909
Aug. ..	26,471	21,629	75,325	57,193
Sept. ..	.....	18,806	.....	65,936
Oct. ..	.....	18,043	.....	72,116
Nov. ..	.....	19,947	.....	75,664
Dec. ..	.....	18,252	.....	80,863

* At the end of month.

PRIME WESTERN ZINC PRICES.

Average Prices, East St. Louis Basis.

	1923	1922	1921	1920	1919	1918
Jan. .	6.96	4.71	5.44	9.22	7.12	7.71
Feb. .	7.25	4.50	4.95	8.82	6.37	7.73
Mar. .	7.87	4.65	4.73	8.62	6.18	7.42
Apr. .	7.32	4.91	4.75	8.26	6.16	6.81
May .	6.72	5.10	4.86	7.72	6.11	7.14
June .	6.05	5.35	4.44	7.58	6.57	7.85
July .	6.09	5.77	4.27	7.82	7.56	8.43
Aug. .	6.35	6.24	4.19	7.95	7.50	8.73
Sept. .	6.46	6.56	4.25	7.77	7.20	9.31
Oct. ..	....	6.85	4.61	7.25	7.49	8.77
Nov. .	....	7.14	4.68	6.37	7.83	8.39
Dec. .	....	7.12	4.85	5.84	8.40	8.21
Av. ...	....	5.74	4.67	7.77	7.04	8.04

Annual Averages.

1917.....	8.93	1912.....	6.93
1916.....	13.57	1911.....	5.70
1915.....	14.16	1910.....	5.42
1914.....	5.11	1909.....	5.39
1913.....	5.61	1908.....	4.62

WATERBURY ZINC AVERAGES.

	1923	1922	1921	1920	1919	1918
Jan. ..	8.00	5.25	6.05	9.75	9.00	9.60
Feb. ..	8.00	5.00	5.50	9.40	8.10	9.60
Mar. ..	8.70	5.10	5.25	9.15	8.00	9.40
Apr. ..	8.25	5.40	5.20	8.85	6.90	8.50
May ..	7.60	5.55	5.30	8.30	6.80	8.95
June .	7.00	5.85	5.00	8.15	7.25	9.50
July ..	6.80	6.20	4.80	8.45	8.10	10.30
Aug. ..	7.10	6.50	4.70	8.55	8.15	10.45
Sept. .	7.30	7.10	4.75	8.45	7.85	11.20
Oct. ..	....	7.65	5.10	7.50	8.15	10.60
Nov. .	....	7.90	5.15	7.00	8.55	10.20
Dec. .	....	7.90	5.30	6.40	9.05	10.00
Av. ..	....	6.28	5.17½	8.33	8.00	9.86

LEAD IN SEPTEMBER

The month opened with the American Smelting & Refining Company contract basis price at 6.75c New York and the outside western market at 6.67½c E. St. Louis basis. On September 14th the American Smelting & Refining Company advanced their price to 6.85c New York and same remained unchanged for the balance of the month.

During the early days of the month the market was very firm, with a feeling in the trade that an advance of the American Smelting & Refining Company's price might come at any time, and this being followed by very good buying by consumers, the expected advance took place September 14th. During the balance of the month, market continued firm, with every indication that supplies as they came into the market were going into consumption, and producers well booked ahead.

The position of the metal is a strong one. In fact had it not been that some of the consumers were believed to be carrying good stocks of manufactured materials, and the pause in business confidence during the last half of the month, there is every indication that another advance in the American Smelting & Refining Company's price would have taken place.

As said before production and consumption are running so closely together that no surplus accumulates, and at any time the strong statistical position may bring another advance in the price.

The London market opened at £25 2s 6d, advanced to £26 on September 6th and after limited lower fluctuations closed at £26 5s, a rise of over £1 for the month. Under the duty of 2⅛c per pound, cost of import is around 7¼c and therefore imports to United States are impossible.

LEAD PRICES, ST. LOUIS.

Average Prices, East St. Louis Basis.

	1923.	1922.	1921.	1920.	1919.
Jan. ...	7.64	4.40	4.78	8.32	5.36
Feb. ...	8.16	4.40	4.29	8.62	4.83
Mar. ..	8.33	4.43	4.03	8.93	5.01
April ..	8.03	4.97	4.30	8.71	4.87
May ...	7.12	5.30	4.82	8.52	4.80
June ...	6.88	5.58	4.34	8.36	5.06
July ...	6.13	5.45	4.28	8.58	5.42
Aug. ...	6.51	5.55	4.23	8.89	5.60
Sept. ...	6.74	5.90	4.41	8.23	5.81
Oct.	....	6.36	4.47	7.08	6.22
Nov. ...	....	6.88	4.38	6.16	6.68
Dec. ...	....	6.99	4.40	4.75	6.96
Year ...	....	5.52	4.39	7.93	5.55

Annual Averages.

1918	7.25	1913	4.26
1917	8.92	1912	4.38
1916	6.80	1911	4.31
1915	4.57	1910	4.33
1914	3.74	1909	4.10

LEAD PRICE CHANGES.

The American Smelting & Refining Company's changes in the base price of lead since the beginning of 1922 are given below:

1922—		1923—	
Opening	4.70	Jan. 10	7.50
Mar. 30	4.80	" 22	7.75
April 3	4.90	" 23	8.00
" 7	5.00	Feb. 23	8.10
" 20	5.10	Mar. 1	8.15
" 24	5.25	" 2	8.25
May 16	5.35	April 19	8.00
" 18	5.50	" 28	7.75
" 29	5.65	May 3	7.50
June 7	5.75	" 9	7.25
Aug. 21	5.90	June 21	7.00
Sept. 14	6.00	July 2	6.65
" 19	6.10	" 3	6.50
" 22	6.25	" 5	6.35
" 27	6.35	" 6	6.25
Oct. 6	6.50	" 9	6.10
Nov. 1	6.75	" 10	6.00
" 2	7.00	" 23	6.25
" 24	7.10	" 27	6.50
Dec. 19	7.25	Aug. 27	6.75
1923—		Sept. 13	6.85
Jan. 9	7.40		

QUICKSILVER IN SEPTEMBER

A more settled market for quicksilver exists today. After the upheaval in August present conditions are relatively quiet. At the same time there is considerable buying, in fact, both importers and large consumers expect to see a further advance of $3.00 to $4.00 per flask. The lowest price made early in September were $58.50 per flask for spot and $58.00 afloat. Since that time, however, the market has advanced $3.00 to $4.00 a flask, sales being made today at $61.00 to $62.00 a flask, the inside price, $61.00, and as high as $61.50, have been paid for 25 to 50-flask lots in the last few days. Practically all of this was spot. Most of the metal afloat and for shipment from the other side is now held at slightly higher prices.

The largest buyers here have continued to be the color manufacturers and furriers. Mercurial manufacturers are also credited with having purchased several hundred flasks more and to have made additional resales of small lots in the south and in the interior at substantial advance in prices. Importers and dealers as well as large consumers expect the market to fully recover to $65.00, which was the level at the end of July.

It is estimated that between 700 and 800 flasks arrived here from Spain in September. Moderate receipts have also come from Italy but at present time Italian holders are asking prices relatively above the New York parity. A number of Japanese inquiries have also been in the market recently and 100 to 200 tons have been sold for Oriental shipment. It is now known that while some warehouses containing quicksilver in Japan were wrecked a considerable portion of the metal was salvaged so that smaller purchases for Japanese account are expected here than were anticipated a month ago.

ALUMINUM IN SEPTEMBER

The position of aluminum changed but slightly during the month of September. The market is now practically under control of the Aluminum Company of America which is selecting its customers and taking business mainly at 26.00c delivered for 99% and 25.00c delivered for 98% to 99% grade. Most of the large consumers have covered their requirements for this year and negotiations are now under way for shipment over the first quarter of next year but thus far it is understood that no important contracts have been closed. Some small consumers may not be able to buy from the Aluminum Comany of America. Regular customers of the large interest, however, find preferential treatment under certain conditions and prices are dependent upon tonnage wanted, time of shipments and points of delivery.

It is claimed that the Aluminum Company of America has no fixed price but that the above prices are approximately correct. This is especially true because holders in the central west wishing to make resales are unable to dispose of their surplus above these prices. The expectation is that business will be done in virgin ingot aluminum at 25.00c to 26.00c delivered for shipment over the the first quarter of next year.

Importers of foreign aluminum have little or nothing to offer. Practically all of the foreign aluminum received is being applied against contracts made many months ago. There is little demand, however, for either foreign or domestic aluminum at the moment.

Remelted aluminum has still been available at 23.00c to 24.00c a pound for 98% to 99% while No. 12 alloy has declined 20.00c to 21.00c a pound delivered.

ALUMINUM, ANTIMONY, SILVER AND STERLING EXCHANGE QUOTATIONS IN SEPTEMBER

Day	Aluminum	Antimony	Silver — N. Y.	Silver — London.	Sterling Exch.
1	....	....	.623/4	30 15/16	....
3	....	....	....	30 15/16	....
4	....	25.50	7.50	.63 1/8	31 3/16	4.52 3/8
5	....	25.50	7.50	.63	31 1/4	4.51 3/8
6	....	25.50	7.50	.63 1/8	31 5/16	4.51 7/8
7	....	25.50	7.50	.63 3/4	31 5/8	4.53
8	....	.....	....	.63 1/2	31 3/8	....
10	....	25.50	7.50	.63 3/4	31 1/2	4.53 7/8
11	....	25.50	7.50	.64 1/2	31 5/8	4.55 1/2
12	....	25.50	7.50	.63 3/4	31 1/4	4.55
13	....	25.50	7.50	.64 1/8	31 11/16	4.54
14	....	25.50	7.50	.64 1/8	31 3/4	4.54 1/4
15	....	.....	....	.64 1/8	31 3/8	....
17	....	25.50	7.50	.64 3/8	31 7/8	4.54 1/4
18	....	25.50	7.50	.64 3/8	31 13/16	4.53 5/8
19	....	25.50	7.50	.64 5/8	31 1/2	4.54 1/8
20	....	25.50	7.45	.65 1/4	32 5/16	4.54 1/4
21	....	25.50	7.45	.65 1/8	32 3/8	4.54 1/4
22	....	....	....	.65 3/8	32 5/16	....
24	....	25.50	7.45	.65 1/4	32 1/8	4.55 7/8
25	....	25.50	7.45	.65 1/4	32 1/8	4.56 1/8
26	....	25.50	7.70	.64 7/8	31 7/8	4.55 7/8
27	....	25.50	7.70	.64 3/4	31 7/8	4.55 1/2
28	....	25.50	7.70	.64	31 5/8	4.55
29	....	.....	....	.64 3/8	31 13/16	....
High	.	26.00	7.75	.65 3/8	32 3/8	4.56 1/8
Low	.	25.00	7.40	.62 3/4	30 13/16	4.51 5/8
Av'ge		25.50	7.53	.6422	31.66	...

ALUMINUM PRICES.

Open market quotations on virgin aluminum 98-99% pure, in New York.

	1923.	1922.	1921.	1920.	1919.
Jan. ...	22.75	17.74	22.86	32.00	33.10
Feb. ...	23.25	17.33	24.50	31.83	32.26
Mar. ...	24.95	17.52	23.44	31.50	29.81
Apr. ...	26.00	18.06	23.25	31.61	30.67
May ...	26.24	17.92	23.06	31.95	32.21
June ...	26.25	17.87	22.75	32.00	32.83
July ...	26.25	17.87	22.62	32.00	32.57
Aug. ...	26.07	17.87	20.22	32.21	32.23
Sept. ...	25.50	18.26	19.02	31.44	32.50
Oct.	.....	20.51	17.85	29.12	32.50
Nov. ...	.....	21.66	17.50	27.80	32.50
Dec. ...	.....	22.52	17.50	23.83	32.48
Av.	.....	18.68	21.21	30.61	32.14

ANTIMONY IN SEPTEMBER

The month opened at 7.50c duty paid, and remained quiet and unchanged until September 26th when holders advanced their price of 7.70c by reason of a better demand and reports that shipments from China would be small. The reason for this is that our market has for some time been below cost of import, and therefore few import orders placed. Consumption is only fair, and stocks here seem ample for requirements. It is believed that some lots are being held by dealers and outside interests that would compete sharply with the importers if market improves further. Opening price was 7.50c, closing 7.70c, these prices being the highest and lowest for the month.

ANTIMONY PRICES.

Prices for Chinese and Japanese antimony (ordinary grades) in New York.

	1923	1922	1921	1920	1919	1918
Jan.	6.81	4.45	5.22	10.53	7.59	14.23
Feb.	7.20	4.38	5.23	11.55	7.24	13.67
Mar.	8.75	4.25	5.30	10.97	6.83	13.12
April	8.38	4.88	5.15	10.45	6.82	12.52
May	7.43	5.42	5.25	9.44	7.56	12.41
June	6.84	5.13	5.06	7.93	8.37	12.99
July	7.05	5.08	4.68	7.43	8.81	13.18
Aug.	7.67	5.29	4.55	7.04	8.92	13.81
Sept.	7.52	6.43	4.53	7.10	8.53	13.93
Oct.	....	6.80	4.94	6.62	8.60	13.44
Nov.	....	6.54	4.66	6.05	9.06	9.10
Dec.	....	6.35	4.51	5.46	9.56	8.19
Av.	....	5.42	4.92	8.38	8.16	12.55

Annual Averages.

1917	20.73	1913	7.43
1916	25.33	1912	7.68
1915	29.52	1911	7.48
1914	8.53	1910	7.27

NICKEL IN SEPTEMBER

Some interest is being developed in yearly contracts for nickel ingots for shipment over 1924, but it is yet too early to determine the extent of the the business which may be developed. The current demand from small consumers continue light and prices range from from $27.00 to $30.00 a pound. The demand for nickel steel has fallen off somewhat but automobile manufacturers are expected to come into the market again for an appreciable tonnage for next year's shipment.

It is understood that some progress is being made in the effort to sell the product of plants which will coat black plates with nickel instead of tin in the hope of securing some of the large business now being transacted with manufacturers of tin containers for food products and oil. As a step to extend the use of nickel, it is understood that lower prices are being made.

It is claimed that nickel plate can successfully compete with tin plate in the world's markets, being available at lower prices than tin plate and being as efficient in practice.

It is estimated that about 80% to 85% of the nickel ore used by the manufacturers of nickel in the United States as well as in Canada comes from the Sudbury deposits of Ontario, Canada. About 10% comes from New Caledonia, an island in the South Pacific Ocean belonging to France. The other 5 to 10% is obtained from copper ores that are treated by the electrolytic process, but this portion of the by-product nickel is of relatively small importance. The International Nickel Company obtains its nickel matte from Ontario. Refining and rolling is done at Huntington, W. Va. The Mond Nickel Company ships its Sudbury matte to Wales and some of this Welsh nickel is being shipped to and worked up into manufactured products in Pennsylvania for the American market. Most of the New Caledonia matte is being refined in this country.

PLATINUM IN SEPTEMBER

Throughout September there was very little demand for platinum and with freer offerings the market was weaker and official prices were shaded $2.00 to $3.00 an ounce, that is, while the official price remained $116, actual business was done at $113 and possibly as high as $114 an ounce in small lots. The differentials between soft refined and other grades was also narrowed, actual business being done in No. 12 medium at $123 and hard at $132 an ounce. These actual trading prices were about $6.00 an ounce under the nominal official prices. Stocks increased some during the month as the demand was very light but toward the end of the month there

was some small increase in the number of inquiries giving promise of improved business in October.

Importations of crude platinum increased somewhat in September and with more effort to sell prices receded to about $107 to $108 an ounce but there was a subsequent recovery from $108 to $110 and at the end of the month small lots were being held at $111 an ounce.

Palladium also receded somewhat last month and at the close sales were being made at $78.00 to $80.00 an ounce, the outside price for small lots. Iridium also weakened and with freer offerings and under moderate demand prices receded to $280 an ounce for appreciable amounts while small lots continued to sell at $290 to $300 an ounce.

Platinum imports in July dropped to 1,394 troy ounces, lowest month for current year, according to the Department of Commerce.

Decline in imports was due largely to decrease in amount of platinum coming from Colombia, but European exports to this country also fell off noticeably. Imports from Colombia were 827 ounces which compares with a monthly average of 1,951 ounces, or a total of 11,705 ounces for the first six months of 1923. The change reflects steamer conditions. Receipts will probably increase as the country's platinum output remains normal.

July imports from England were 348 ounces which compares with a monthly average of 1,663 ounces, or a total of 9,979 ounces for the first six months of the year. Sweden, which has been exporting to this country a monthly average of 821 ounces of platinum since January 1, 1923, did not send any during July, while imports from France were only 162 ounces, which compares with a monthly average of 821 ounces for the preceding six months. Decline in platinum coming from European countries is explained in part by higher prices abroad than here.

Imports of platinum by months since January 1, 1923, are: January 2,927 ounces, February 9,127, March 7,618, April 7,299, May 4,863, June 4,885 and July 1,394, a total of 38,107 ounces valued $4,025,113. Imports for year 1922 were 94,591 ounces valued at $7,749,457, while imports for 1921 were 61,941 ounces valued at $4,115,235.

IRON AND STEEL PRODUCTION IN THE WEST

(Continued from page 486)

laudable exercise of its functions the Institute as a whole will avail itself of its opportunity for self-expression. One of its chief claims to existence is that it represents authoritatively the Dominion's mining and metallurgical fraternity.

Here is a proposal of national importance that requires full public discussion, since public aid has been sought. Numerous members of the Institute are qualified to examine the various phases of the problem and the means proposed by Mr. Landahl to meet the case.

Particularly well qualified for such a discussion are those already engaged in the iron and steel business in Ontario and Nova Scotia.

Here, then, may be an opportunity for the Institute to render a distinct and tangible service to our mining industry, by inducing certain of its members to conduct a full and authoritative public discussion of British Columbia's problem.

Meantime, we may be permitted to give our opinion on the matter. It appears as though too magnificent and conjectural a superstructure had been built upon foundations that are insufficient.

There are too many "if's" about the project. We do not say that these queries cannot be answered satisfactorily, but it is the appearance of conjecture, insufficiently supported by fact that is wrong.

For instance, it is stated that pig iron can be produced at $20.00 per ton, if coke can be delivered at a cost of $5.00 per ton. Can coke be supplied at this figure?

We understand that the estimated cost of coal operators is nearer $11.00 per ton, and there is still the question of where it is to come from. Can suitable coke be produced in British Columbia in a suitable locality? Mr. Landahl hopes to get it from Nicola Valley coal.

Then there is the question of the supply of iron ore. We understand that the main source relied upon by Mr. Landahl is in Mexico, not in British Columbia.

Is it reasonable to expect that such ore can be delivered at a rate to compete with the present Canadian and American producers?—**Iron and Steel Of Canada.**

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Steel and Metal DIGEST

VOL. 13 NOVEMBER, 1923 NO. 11

THE BUSINESS SITUATION

Complexity of the business situation is more pronounced today than it was a month ago. Fundamental conditions are unchanged but there is a constant shifting in forces which modifies prices in the secondary swings.

There can be small doubt that the trend of prices of commodities over a long period, say during the next generation, will be downward. It seems unreasonable to expect a repetition of the forces which brought about the peak prices in 1919-1920. Another world war seems out of the question although there is much unrest, socially and politically, on the other side of the Atlantic. Judging from past experience stabilization of economic affairs in Europe is not likely to be accomplished inside of fifteen years but, although strong efforts to bring about order, political, financial and social, in Europe are meeting with much difficulty, some progress is being made, and eventually a lower level of general prices will prevail in the United States as well as in foreign countries.

Course of Prices.

There are two important groups of factors which have a strong bearing upon the course of prices in general.

These are those which favor an increase in money and credit and the influence of which is to advance prices; on the other hand is the group of forces tending to increase production, and the greater production the stronger is the influence toward lower prices. The resultant of these two groups of forces brings about the general trend in the long run.

Secondary Swings.

More interest and importance, however, attaches to the secondary swings in prices. However much the efforts of economists and the introduction of scientific methods may reduce the range between high and low maximum prices in the business cycle, there will still be marked changes, even though we may escape inflation on one hand and depression or crisis on the other. We have experienced some violent fluctuations in prices since the high altitude of 1919-1920 and the probability seems to be for additional wide swings in the next five to ten years although with a general decrease in the amplitude of the secondary swings. The skyrocketing of prices in 1919-1920 was followed by a profound dip in 1920-1921, succeeded by a sharp upward movement in the last few months of 1922 and the first few months of 1923. Since the late Spring of this year we have been experiencing a reaction. Readjustment, however, is being accomplished with varying degrees in different industries, the complexity of which makes it difficult to determine the general course in the near future.

Gold and Credit.

Business men should not be unmindful of the fact that following all previous great wars this country, and in fact most other countries, were on a paper basis. Today we have the gold standard. Our enormous amount of gold affords us a foundation for a tremendous amount of credit and the latter is being utilized more than ever before by business enterprises. These are the facts which tend to advance prices.

These potential factors, however, may not be called into full use. Behind the latent power of money and credit is the will of the business enterpriser and the will to do is not likely to be exercised unless there is confidence in the future.

Element of Profit.

Profit is the incentive for industrial and trade expansion and insofar as the prospect for profit is reduced, the volume of business will decrease. The real costs of production today are high because of the unprecedentedly high wages to labor measured in money as well as in exchange of commodities and services. Large production today, as indicated by reports from various industries and from the carriers, has a tendency to modify rising prices.

Automobiles.

Some industries, such as copper, oil and rubber, have been subject to the forces of deflation for a longer or shorter period and this movement is still in process. Other industries have just about reached their peak, as for instance the automobile industry. The latter undoubtedly will pass through a period of readjustment later. In this connection it is interesting to observe the estimate of Colonel Leonard P. Ayres that during the last four years the people of the United States have spent about 6.7 billion dollars for automobiles.

During the same period the Standard Statistics Company estimates that we have consumed 20.8 billion gallons of gasoline. Assuming a price for gasoline even so low as 20 cents per gallon, the gasoline bill of automobile owners has amounted to 4.2 billion dollars.

Automobiles and gasoline together account for the use of about 2.7 billion dollars a year since 1919. With these figures before us it is not hard to accept the claim made that purchases of automobiles in recent years have attracted large blocks of capital at the expense of investment in securities.

The question is asked, are automobiles being absorbed at the expense of other industrial products? It would seem that while many more auto cars are being produced and bought than are justified by the income of the purchasers, the automobile industry is still a helping factor to other industries. For instance the 4,000,000 automobiles that will be produced this year will have called for upward of 3,000,000 tons of steel. The automotive industry today ranks as the third largest consumer of steel, its consumption being exceeded only by railroads and building construction.

National Income.

It is estimated by the National Bureau of Economic Research that the national income in 1919 was 66 billion dollars and the Standard Statistics Company estimates that the average annual national income in the last four years has been between 60 and 62 billion dollars.

The indication, therefore, is that about 4½% of the national income is being spent for automobiles and automobile power. Standard Statistics also estimates that the nation has spent about 10 billion dollars in the last four years for new buildings; that 11.9 billion dollars has been paid in income and profit taxes and therefore that an average of 8.2 billion dollars a year was spent for automobiles, gasoline, building and income taxes, which is equivalent to about 13.2% of the total annual national income. About 20% of the national income has been derived from agriculture and about 30% from manufacturing industries. "Thus the percentage of the national income that during recent years has been going to automobiles, buildings and income tax is nearly two-thirds as great as the income from agriculture and nearly one-half as great as the income from all manufacturing activities."

There seems no reason to deprecate this distribution of the national income, outside possibly of the large percentage going to taxes. The automobile is not to be considered only as a luxury. It has found an important place in the transportation industry and will so continue.

Building Situation.

In some measure the enormous shortage in building and railroad equipment which resulted from the war has been lessened, although there is no question that a large amount of construction work is still waiting. In October there was a decided falling off in the amount of structural steel ordered for building work. This reduction is attributed largely to high wages prevailing for labor and high prices for material, but the decline in prices for structural steel has not been what might be expected under the circumstances. There is hope that high wages paid in the building trade will effect its own cure now that a mechanical bricklayer has been invented. The labor unions are doomed to learn a much needed lesson now

that science and invention has been called into the building field. The mechanical bricklayer is a machine of marvelous technique, capable of laying 12,000 bricks in an ordinary bricklayer's day. The bricklayer may soon have to find other spheres of work. It is to be hoped that science will not long delay in invading other building fields.

Price Changes.

Whatever may be the opinion of business men regarding the far or near future, he is vitally interested in the present but he must clearly differentiate the changes in prices resulting from ephemeral movements or changes arising from fundamental conditions. Never was there a time when it was more important, than at present to be alert to the influence of current events upon prices. If the monetary factors previously noted prove to be of stronger force than those relating to production and consumption the tendency will be to the stabilization at the higher level of general prices but so wide is the difference of conditions in various industries that prices of some commodities will continue to decline while others are advancing.

Steel Industry.

In October trade optimists were decidedly defeated but during the first ten days of November the optimist has had more reason to feel encouraged. In some lines, such as steel, the lion's share of the business has been going to the largest interest. The rank and file of consumers have not increased buying nor do they seem likely to expend purchases in the near future. The larger volume of business taken by the Steel Corporation was due to a few exceptionally heavy purchases by large interests who usually are accorded preferential treatment, and the large output by the Corporation resulted from specifications received against its heavy backlog of orders.

The significant point is that the difference between the Corporation and the independent interests is further extended. The falling off in production by the latter was sufficient to overcome the gain by the former to the end that the daily rate of ingot production in October was the smallest since October last year. Today independent companies are utilizing scarcely more than 66% of ingot capacity against a little more than 68% in October while the Steel Corporation is employing about 89% against an average of 89.65% in October. Independent companies are more in need of business and are again making concessions in prices of some forms.

Future Buying.

Consumption of steel, if gauged by shipments of the Steel Corporation subsidiaries, is heavy but if represented by shipments from independent mills is falling off. There is no incentive for most consumers to anticipate future requirements because the probability is of lower rather than higher prices.

Pig iron and other raw material entering into the manufacture of steel have sustained further reductions in prices. Consumers, therefore, anticipate concessions to be made in finished products sooner or later. On the other hand producers are of the opinion that no great increase in buying would result from lower prices at the present time, so that a revision in prices is probably withheld until next Spring.

In the meantime special interests, such as the railroads, are being encouraged to place contracts.

Copper Industry.

Apparently the copper industry recently has sympathized more with pig iron than with finished steel products. Copper mining is a primary industry and subject to the law of decreasing returns but after a drop of 5c. to 6 c. a pound in prices of wrought and unwrought copper, it is not surprising that there should be a temporary reaction in prices under increased buying.

Stimulation came through the interaction of the London and New York markets. The primary incentive for a recovery in prices came through speculative operations, largely on American account, both at home and abroad. It is important to keep in mind, however, that the fundamental conditions in the industry have not changed. This is shown in the fact that refined production exceeded deliveries into domestic and foreign consumption last month by 20,000,000 pounds when production was the largest of record. Deliveries, too, were heavier. In some measure the increase was due to the large exports, especially from South America. The lower wage scale put into effect November 1st at some western copper camps may

help producers if labor is in ample supply, but coal mines, with their high wages, are attracting miners away from the copper mines while restricted immigration keeps out many workers who are sadly needed in the west.

Conservatism.

One of the most serious problems to be solved is how to maintain an equilibrium among industries and keep wage earners employed in full with real costs of production at so high a level as to restrict production. The margins of profit are growing smaller as costs of production rise. Under the circumstances it seems the part of wisdom for business men to continue in the attitude of conservatism which it has occupied for some months.

Foreign Situation.

There is much disappointment that the attitude of the French Government toward the proposed conference of Powers to establish the capacity of Germany to repay reparations, has caused the practical abandonment of the plan, by the Washington administration. In the opinion of the American Government some sound financial plan for German reparation payments should be formulated and adopted by the powers to prevent economic disaster in Europe.

The insistence of the French Government, however, that the inquiry should be limited to an investigation of Germany's capacity to pay up to 1930, makes it "wholly futile and useless to hold the inquiry."

Considering the various conflicting elements in economic affairs at home and abroad, it is not surprising that the complexity of the business situation has been increased in the last month.

Signs We May Be Entering Period of Temporary Inflation.

The improvement in business sentiment during the past two weeks has grown in a very surprising manner, and is no longer confined to Wall Street.

Consumers who held off so long from making purchases have been impressed by the change and have begun to make provisions for their future requirements.

While there has been no change in fundamental conditions and while the European political situation shows no betterment, it is beginning to be felt that we may be facing a period of inflation and for the time being the buyers had better ignore their doubts, and go with the tide, or they may have to pay for their ultra-conservatism. A striking feature this week has been the sharp decline in sterling exchange to around $4.35 at time of writing which is another indication of inflation.

RAILROAD VALUATION

In connection with the next session of Congress there is certain to be a great deal of talk about railroad valuation, even though few who talk can have anything like a clear conception of what the problem of railroad valuation involves. The valuation considered is one for rate making purposes, this being the single objective of the whole matter. There are several different theories as to what basis should be used, and while the Interstate Commerce Commission adopted a tentative valuation for rate making purposes, when in 1920 it set rates for the termination of the Government guarantee, it has not formally stated the precise principles on which the tentative valuation was adopted.

Without attempting to refer to any of the respective theories as to valuation, it may be mentioned here that the matter of railroad valuation is much more difficult than the many valuations that have been made and are being made of public utilities, for the simple reason that in the case of the typical public utility earning power can be and is taken as one of the points considered, whereas in the case of the railroads this point is entirely eliminated since the purpose of the valuation is to determine what rates are to be and therefore what earnings are to be.

A very important point for the ordinary citizen to consider is the arithmetical relations between valuation, rates and earnings. It is unnecessary to cite a lot of figures to show that the valuation will affect railroad earnings vastly more than it will affect rates. The railroads must pay their operating expenses, taxes, etc., before they come to earnings. If the valuation were zero and railroad earnings were reduced to zero the freight and passenger rates would still have to cover these operating expenses. Railroad earnings have been varying of late, but have been running below what they should be to equal the return the Interstate Commerce Commission had in mind when

fixing rates.

This simple statement can be made, that if the earnings were up to the expectation, then five-sixths of the railroad receipts would be for operation and one-sixth would be for interest and dividends. To reduce the tentative valuation, now some 19 billion dollars, to nothing at all, therefore, would only permit rates to be reduced by one-sixth, if they were high enough to provide the desired earnings, which they are not.

Railway Age puts somewhat the same thing in another form, by saying that if the valuation were reduced by one billion dollars the rates could not be reduced by as much as 1%.

These comparisons give a clear arithmetical conception of the relative importance of these three things, valuation, rates and earnings.

A business man may well ask himself what would be the practical result to the people of this country if the valuation were reduced. There could be only a very slight reduction in rates, an apparent saving to the public. On the other hand must be considered railroad credit. The investor might, conceivably, know nothing specific on the subject but he could see plainly that if all these railroad properties are so valued that their familiar securities, in bonds and shares, yield a low return it is not a good thing to invest any fresh capital in railroad securities. Thereby the railroads would suffer in development, fail to achieve the efficiency and economy they would have, and whatever their valuation should be set at for rate making purposes those rates would have to be higher than if more capital were invested in economies.

Rates would be lower if they were 20% above operating cost on an efficient basis than just equal to operating cost on an inefficient basis.

OIL AND STEEL

Another monthly report on petroleum comes with an increase in production, September showing a daily rate 2,145,067 barrels, against 2,126,968 barrels in August. The two months merely showed a slight decrease in the rate of increase. The sharp increase in production began in October, 1922, so that there have been 12 months of rather rapidly increasing production, the increase showing a little sign of tapering off in August and September.

The comment made in most quarters regarding this increase in oil production indicates that it is regarded as more or less unfavorable to business generally. It does not necessarily follow that this is a correct view. Such habits of thought are sometimes found on reflection to be incorrect.

While Wall Street performs a very useful service to the public in certain ways, distorted views are sometimes taken by business men through their looking at things through Wall Street glasses when Wall Street glasses ought to be used only for Wall Street affairs. That is, while heavy production of oil may be bad for prices of oil stocks it is a totally different thing for the consumers of oil, and the consumption of oil is connected with a great deal of industrial activity in the United States.

Wall Street can always buy and sell, therefore is chiefly interested in what is going to occur next. Business men must take a longer range view. Men who have followed oil for years are less impressed. They note that it has been rather customary for oil to alternate between plethora and scarcity, and do not take much stock in either, expecting reaction in the course of time.

As to the influence of these oil developments upon steel it is particularly precarious to try to develop any positive conclusions. Steel demand is created by oil in various ways, in drilling, for casing and tubing, in storage, in tank plate and in export, in tin plate. When there is what is thought to be "overproduction" it does not follow that drilling of wells will stop. Much drilling is what is called offsetting, the essense of the operation being that an oil company drills a well to get oil that his neighbor and competitor might otherwise get. Offsetting is not discouraged by statistics of production and stocks or even to any great extent by prices.

Steel demand by way of storage tanks is another matter entirely, and tin plate demand for exporting oil is a third matter. The future of steel demand is always hard to estimate at best, but to try to illuminate the future of steel production by oil statistics is especially risky.

STEEL EARNINGS AND PRICES

As long as we retain our present awkward and inefficient calendar computations will be necessary in many cases before comparisons can be made of various things that are reported monthly. Apart from the influence of holidays a five-Sunday 30-day month and a four Sunday 31-day month may come together, making one of the months 8% longer than the other.

The United States Steel Corporation's monthly earnings fall in the class referred to, as to comparisons. The table published monthly in the American Metal Market showing estimates of the corporation's bookings and shipments avoids the difficulty by expressing the points in percentages of the month's capacity. Computing from that table the tons shipped each month and dividing the tons into the monthly earnings reported, the apparent earnings per ton are brought out, making rather an interesting table. It will be understood that the computations are based on estimates, and while the figures are set down to the last nickel per ton the last figure cannot really be depended upon. As the probable error is less than the monthly fluctuations the general swings shown by the table are to be trusted.

The first column shows the monthly earnings as reported, after payment of subsidiary company bond interest, the second column the apparent earnings per ton of steel shipped to customers outside the organization:

	Earnings	Per ton
January	$10,561,241	$ 8.60
February	9,527,181	8.50
March	14,691,647	11.50
Quarter ...	34,780,069	9.60
April	14,399,988	11.70
May	17,698,675	13.30
June	15,759,518	12.40
Quarter ...	47,858,181	12.50
July	15,767,003	13.35
August	16,997,467	13.65
September ..	14,289,210	12.40
Quarter ...	47,053,680	13.18

Except for two backsets, there is a practically continuous increase in the per ton earnings. The increase, of course, is due to higher prices realized on shipments. Advances in the open market ceased in April but owing to the time elapsing between booking and shipping, sometimes many months, realized prices increase long after market advances have ceased.

The two backsets are attributable to wage increases. There was one announced to be effective April 16th, but the influence upon profits was delayed a few weeks, June showing a distinct decrease in per ton earnings.

The elimination of the 12-hour day has involved increases in per hour wages for many workmen. An influence from this is seen in the September per ton earnings, but undoubtedly September did not feel anything like the full effect. There was a decrease of about $1.25 per ton from August to September, while an increase would be expected, from further exhaustion of old and low priced orders. Setting this at about 25 cents, there would be $1.50 a ton chargeable to the 12-hour day matter, and if September witnessed half the influence, then the total effect of the 12-hour day elimination would be $3.00 a ton. This is really only a guess, of course, but it is a reasonable guess since there is no other specific and precise statement on the subject.

A question being asked by many is: Can steel prices be reduced, when there is the increased cost due to elimination of the 12-hour day, and fair earnings be made? This question can now be answered in a rough way. At September realized prices the earnings would be about $11.00 a ton. The quarter's shipments were somewhat over 3½ million tons, but at 3½ million tons and $11.00 per ton earnings a quarter would show $38,500,000, which would be only fair, not at all satisfactory. This assumes educing prices by the amount that prices realized on September shipments were below the current market. That would mean keeping tubular goods, wire products, sheets and tin plates at their present prices and reducing bars, shapes and plates a very few dollars a ton.

INDUSTRIES INTERESTED IN FUTURE OF FUEL.

The "fuel question" has become a serious issue in every industry and in every home. The high cost of fuel is felt by almost every citizen in the land.

The supply of natural gas is failing rapidly, the price of artificial illuminating gas increases with the cost of the coal and oil from which it is made, and

with the increased demand for oil the price of coal fuel fluctuates and the supply is uncertain. In those states depending largely upon anthracite, much inconvenience, and even suffering, has resulted from the limited supply and consequent high prices. The greater part of the country is dependent upon bituminous coal, of which there is practically an unlimited quantity available for mining, but the cost of transportation and the interruptions in the mining industry have resulted in prices which, in many cases, have doubled in a few years. There is little relief in sight except that relief which will result from a more efficient use of the fuel available.

Smith suction gas producers have furnished the answer to many knotty fuel problems in American industry by making it possible to utilize the available fuel in a more economical way.

There are a great number of industries where steel, iron, glass, ceramic products and non-ferrous metals must be heated in an economical and dependable manner. Here, Smith gas finds its widest fields of application.

Industrial and public utility power plants have adopted the Smith gas producer and the producer gas engine as a means of developing power, because one ton of coal used in this way will generally develop from two to five times as much power as when used in other types of power plants. In some localities bad water conditions make the operation of steam plants difficult and expensive, or the fuel available may be undesirable as a boiler fuel, but very desirable as a fuel for Smith producers.

Smith gas producers have been largely adopted in the food baking industry where gaseous fuel is so desirable. It is particularly desirable in this industry because under no circumstances will Smith gas, when burning in an oven, produce a smoky flame. Taken the country over, this gas costs only about half the current prices of city gas.

The same thing is true as to those industries having japanning and other baking operations where Smith gas has no equal in economy and general utility.—**Blast Furnace and Steel Plant.**

ELECTRIFYING INDUSTRY

"The progress which engineers have achieved in assisting industry to make use of electricity in various forms has, as all who have followed this phase of electrical development are aware, been really remarkable," says the **Electrical World.** "Manufacturing processes have been simplified, flexibility in factory construction and operation has been wonderfully increased, quality and refinement in production have been improved, schedules have been bettered and made easier to follow, new products otherwise impossible have been made available, and, not least among the contributions which electricity has made to industry, the productivity of the individual worker has been greatly enlarged, and at times it has been possible to replace him entirely, thus relieving him for work where human ingenuity is necessary. Electricity has done this by the application of motors and by improvement in control, by the scientific advance of electrical heat treatment, by the development of the electric furnace, by improved illumination and by various other methods.

"The interest of the engineer, however, lies not so much in past accomplishment, except as it may point the way to future achievement, as it does in the problems connected with the further extension of electricity to industry. A great work remains to be done, and it is fairly safe to assume that the unaccomplished tasks are among the most difficult. One of these tasks is still further to replace human hands and human muscle, and in some cases human minds, in the performance of the routine work which is now done by a constantly diminishing class of labor. As has been said before, electricity will eventually be the most effective of all agencies in minimizing or solving what is called the immigration problem. To accomplish this not only must new machines be developed, but there must be a radical advance in control equipment in order to reduce the need for human supervision.

"Approached from whatever angle, the electrification of industry is a service to society and to humanity. It presents to engineers and to all other electrical men an opportunity which they will not fail to grasp in their efforts to bring to a realization the electrical industry's desire to have electricity render a maximum of service."

THE BRITISH EMPIRE'S RESOURCES OF THE BASE METALS

Sir Richard Redmayne, the eminent British authority on the base metals, read a paper recently before the Royal Society of Arts, in which he discussed in a broad way the Empire's resources in these metals and their relation to the world's supply. He said, in part:

Copper.

Copper, which figures so largely in the base metal industries, is the metal as to which the British Empire is worst off in point of domestic supplies.

The average annual world's output of copper at the beginning of the Nineteenth Century was only about 9,000 tons; by the middle of the century it had grown to 40,000 tons, and at the end of the century to over half a million tons. In 1913 it was nearly one million tons, and in the record year of 1917 it had amounted to one and one-half million tons.

In the year 1919, the British Empire contributed only 6% to the world's output of copper; in 1920 7½%, and in 1921 8½%.

The country chiefly affected by the decline in production since 1917 is, of course, the United States of America, for she produces normally over 50% of the total world's output, and large as is her proportion of the world's production, she controls a still larger production by ownership of mines in other countries, notably Chile and Peru.

The British Empire, with Canada and Australia as the chief producers, does not supply sufficient copper for her needs, nor even for the needs of the United Kingdom alone. Thus, the pre-war consumption (1913) of the three greatest copper consumers in the world was as follows:

U. S. A.	340,000
Germany	225,000
Great Britain	138,000

or, in the case of Great Britain, one and a half times the Empire's output.

The great increase in the world's production and consumption of copper is chiefly due to the vast expansion in the use of electricity for power and lighting purposes which has characterized the last 25 years. Indeed, the importance of the metal in modern industry is shown by the fact that the motor car trade in the United States alone consumed 50,000 tons of copper in 1922.

From the point of view of potential resources, the British Empire contains extensive areas of copper-bearing ground which might, with advantage, be subjected to close investigation with a view to increasing the output of that metal.

From this Empire point of view Canada presents the most likely source of increased supply, particularly British Columbia. It is reported that millions of tons of copper ore have been proved in northern Manitoba, where development has been active for several years.

The production from the Otavi mines in South West Africa is also increasing, and production may soon be expected on a larger scale from Papua, where there are extensive deposits of high grade ore.

The deposits of the Union Miniere du Haut Katanga in the Belgian Congo are largely controlled by British capital. Hitherto the production from these mines has been hampered by length and cost of transport, but these difficulties are gradually being overcome and the production, which in 1921 was about 30,000 tons, is increasing rapidly, being over 40,000 tons in 1922.

The chief hope for the more economic treatment, and consequently gradual lowering of the price of the metal, would appear to be in the wider application of flotation methods in concentration of the ore and new leaching processes for the extraction of the metal from the ore, permitting as they do large deposits of low grade ore to be worked.

Lead.

The world's production of lead ore, expressed in terms of metal (long tons) for the year 1913 was 1,705,000 tons and for 1921 had declined temporarily.

The British Empire is in a somewhat better position in respect of lead than as regards copper. Taking the years 1919, 1920 and 1921, the Empire produced respectively, 17½, 12½ and 24% of the world's production. The United States, Spain and Mexico are the greatest producers in the world.

But the amount produced within the Empire falls short of the amount im-

ported into the United Kingdom. There is imported annually into the United Kingdom something over 200,000 tons of lead in one form or another, but she exports a certain proportion of this, either as pig lead or manufactures of lead, to the extent of between 70,000 and 80,000 tons.

Before the war, Germany used to obtain from her own mines about 50% of the lead smelted in that country; the balance she drew from Australia and Mexico—largely from Australia in the form of concentrates, but the increase in smelting capacity in Australia during the war must materially affect the present position in this and other respects.

From all one can learn it would appear that the lead-mining industry is exceptional in being one of the few branches of the base metal mining industries which is not over-developed. It is remarkable also, that no great discoveries of lead ore have been made within recent years, and it looks as if the developed resources were being exploited near to, if not up to, their full capacity. Although we are far from meeting our requirements in lead, the Port Pirie lead smelting works of the Broken Hill Associated Smelters Proprietary Limited, in Australia, (the largest works of the kind in the world) is capable, when working to full capacity, of producing 200,000 tons of pig lead and 8 to 12 million ounces of silver per annum.

The United States is the largest producer of lead in the world. It is also the greatest consumer of that metal. Spain and Australia both export more lead than America.

Taking the last pre-war year, we find that 82% of the world's production was derived from five countries, viz., the United States of America, which accounted for 37%; Australia, 20%; Spain, 15%; Germany, 6%; and Mexico, 5%.

Lead enters into a vast number of industries. It is, however, chiefly consumed in the making of white lead paint, pipes and sheets, coverings of cables, and as an alloy with antimony and tin. It is also used largely for storage batteries, in enamel, glass, pottery, etc.

Britain is the largest importer of lead in the world.

Before the war, Spain supplied 38% of our requirements; Australia 28%; U. S. A. 15%; and Mexico 10%.

The perfecting of the flotation process of concentration has had the effect of rendering possible the retreatment of considerable accumulations of zinc-and-lead-bearing tailings and residues at the Broken Hill Mines of New South Wales.

Before the war, a total loss of 5% in smelting lead concentrate was considered good practice with a fairly good equipment. Of course, in smelting low-grade concentrates or slags containing lead, which had to be resorted to during the war, particularly on the Continent, the losses were much greater. The loss in smelting Serbian slag containing 8.5% lead was as high as 24%. I merely mention these facts as pointing to the scope still remaining for research work.

Our resources of lead within the Empire, are considerable. Burma alone should contribute greatly in future to the British requirements in this respect, and, looking to potentialities at home, I am one of those who believe that our own supplies will be found to be well worth further exploitation as foreign costs increase. It was the more cheaply worked deposits of Spain which originally rendered unprofitable the lead-mining industry at home, but since the day when lead-mining was extensively prosecuted in this country, methods of extraction have greatly improved.

Industry is very active in the United States of America, and credible observers consider that during the present year that country will consume more lead than it produces.

Galena lead ore is the chief source of silver, and the position of the precious metal in point of demand, and consequently of price, must have an important bearing on the value of lead.

Zinc

The ores of zinc are closely associated with those of lead, and the two metals are in many cases obtained from the same mine. Just as in the case of lead, the United States of America far exceeds any other country in the quantity of zinc she produces.

Taking the years 1919, 1920, 1921, the contribution of the British Empire to the zinc production of the world was 1%, 6%, and 30% respectively. of the world's production, the low figure for 1920 being due primarily to the strike at the Broken Hill Mines in Australia.

In point of consumption, taking the year 1913 as a normal year, the position stood thus:

	tons.
United States absorbed	308,000
Germany	228,000
United Kingdom	191,000

Those three countries are the chier consumers of the metal. The British Empire meets only one-third of the requirements of the mother country.

The use of zinc in commerce has grown rapidly. Formerly its use was practically restricted to the manufacture of alloys with copper, tin, and lead, but the realization of its value as a coating material and the discovery of the galvanizing process gave an enormous impetus to the consumption of zinc, and probably 65% of the total zinc smelted is consumed in this way. But there are numerous other uses to which it is put, one of the most recent being in the form of an alloy with aluminum in the manufacture of aeroplane parts and shell fuses.

The two most noticeable features in respect of zinc at the present time are:

(1) The rising production of electrolytic zinc, notably in Tasmania, Canada and the United States of America, and

(2) The fact that, as a result of the war, the world's smelting capacity of zinc is largely in excess of the ore production. The capacity in this respect of the United States of America alone is now 800,000 tons per annum.

As Mr. Gilbert Rigg has informed us in his interesting article, "The zinc industry at the close of 1919," prior to the war, there was, for all practical purposes, but one method of extracting zinc from its ores, namely, the distillation process. "The possibilities," he said, "of leaching and electrolysis has been discussed and tried out for more than a quarter of a century, but, in spite of numerous attempts ranging in scale from laboratory experiments to more ambitious efforts reaching in at least one case to very large expenditure indeed, the effect upon the industry was so small as to be negligible."

The electrolytic process is now an acknowledged commercial success, although still the greater part of the production is due to distillation.

As illustrating the headway made by the electrolytic process of recovery one may point to the potential production of electrolytic zinc from the following well-known concerns:

Anaconda Copper Mining Company, Great Falls, Montana, 55,000 to 60,000 tons. (This company recently acquired the American Brass Company, and will require more than this quantity of zinc for its own consumption).

Electrolytic Zinc Company, Risden, Tasmania, 40,000 to 60,000 tons.

Consolidated Mining & Smelting Company, Trail, B. C., 20,000 to 25,000 tons.

Judge Mining & Smelting Company, Park City, Utah, 2,500 tons.

Brunner Mond & Company, England, 1,700 tons.

It would certainly seem as if electrolytic extraction will gradually supersede the distillation process with resultant saving in cost.

Black, indeed, was the outlook for zinc two years ago; there was little market and nearly all the home smelting plants were shut down. By the end of 1922 the position had materially improved. In America, for instance, the metal had nearly doubled in price, and there were barely two week's supplies in stock, thousands of tons having gone to Europe to meet the increased demand. In 1921, the production was less than half that of what may be described as a "normal" year (e. g., 1913). Zinc with copper constitutes the alloy we know as brass. Improvement in the engineering trades means an increase in the demand for zinc. Production in the present year is not likely to exceed consumption, stocks have greatly diminished, and the engineering trades are slowly improving. A recovery from the last two and a half years' depression would appear to be in sight.

Tin

The Empire position in respect of tin is different from that of the three previously named metals, inasmuch as the Empire is the chief contributor to the world's production, accounting for more than half of the annual output. The Malay States are the chief producer, contributing over 36% of the world's output; then follow Bolivia and the Dutch East Indies, with about 20 and 15% respectively.

At present the consumption and production of tin appear about to balance, a feature which may be contrasted with copper where during the last two or three years drastic curtailment of output was resorted to.

Tin is peculiar in that its sources are few and far between, and few new deposits have been discovered in recent years, although it appears probable that the Belgian Congo will become an important producer in the not far distant future. It would seem that, unless really extensive deposits are yet remaining to be discovered, tin will be one of the first of the base metals to be exhausted, and so far as I am aware, no satisfactory, or, at any rate, cheaper substitute than tin as a covering medium in "tin plates" has as yet been found, and in the manufacture of tin plates lies the chief consumption of tin. For the purposes of cooking utensils aluminum will probably take the place of tin, copper and brass.

Tin is of importance in the making of certain alloys, e. g., bronze, fusible metal, pewter, Babbitt metal and type metal.

The smelting of tin ore is concentrated in few hands, although the tin smelting capacity of the world is well in excess of the annual supplies of ore. In this respect the Straits Settlements' heads the list, with a capacity of about 58,000 tons, Great Britain coming second, with a capacity of about 34,000 tons, and the United States of America third, with a capacity of 30,000 tons. These figures are in terms of metal, the total world smelting capacity being about 175,000 tons per annum.

An interesting feature of the tin situation is that costs have been brought down to a point where the industry will be in a healthy condition as soon as more normal consumption is reached.

Aluminum

Although aluminum, in the form of the silicate, is perhaps the most plentiful metalliferous mineral in the world, owing to difficulty, of extraction, it is only of late years that it has come to be used commercially on a large scale. Although, too, during the war period the Central Powers, being short of supplies of bauxite, were forced by pressure of circumstances to endeavor to extract aluminum from clays, this is not yet a normal commercial possibility.

Bauxite, which contains from 30% to 60% of alumina, is the chief source of the metal, but only the comparatively pure mineral can as yet be used profitably for extraction of the metal.

The uses to which aluminum is put are very numerous, largely owing to its lightness and resistance to oxidation. It forms alloys, with several other metals; is used in the construction of aeroplanes and airships, in telegraphy and telephony; in the manufacture of explosives, and many other directions. If a process could be discovered whereby aluminum could be applied to the coating of iron its use would probably be vastly extended.

In 1913 the British Empire accounted for little over 1% of the world's production of bauxite; in 1917, 2%; in 1920, 5%, and in 1921, 9%. The increase in the contribution from the British Empire is due to the development of the deposits in British Guiana.

The United States of America is the chief producer of bauxite, contributing 43% (1921) of the world's output.

France comes next with 25% (1921).

A deposit of high-grade bauxite is not a commercial proposition unless the minerals can be mined and shipped at cheap rates to the smelting locality. For the actual production of the metal water-power is desirable and is usually employed. Thus, though bauxite is not mined in Canada, the cheap water-power available at Shawinigan Falls, Quebec, makes it profitable to extract aluminum from imported ore.

Besides the deposits of British Guiana there exist rich deposits of bauxite in India and the Gold Coast.

NATIONAL BANK'S RESOURCES GROW

WASHINGTON—The growing strength of the country's national banking system is reflected in a composite statement of the condition of the national banks as of September 14th, made public by Comptroller Dawes of the Currency. The statement discloses that, although there were 8,239 national banks in operation on that date, one less than a year ago, almost every item figured into their combined resources showed increases over the bank call of September 15th, last year.

Total resources of $21,712,876,000 included loans and discounts of $11,934,556,000, or an increase of seven hundred million dollars in the latter item alone.

THE OBSERVER'S CORNER

Take two men occupying minor positions in a business organization, men by outward appearance of equal ability, and promote each to a position of responsibility, requiring initiative. One may "make good" and the other may not. Why the difference?

The Observer sees a parallel between such an experience and the case of heredity and environment in human capacity and character. This conception of similarity is hardly fanciful but if it be so regarded no harm is done for the right is claimed to put fanciful things in this department.

The modern school of psychology may not have learned a great deal thus far. Let us hope it has not, for if not then there is a great deal more of practical value and great interest to be added to human knowledge, whereby mankind will become much more efficient. The psychologists have, however, learned some things, and one is that there used to be a very common mistake of attributing various mental traits to heredity when the traits were really acquired by precept and example of parents, and not biologically at all.

At a time, long ago, when there was no scientific knowledge and little interest in the details, phrases such as "blood will tell" were coined. We are not really entitled to assume that those who used the phrase long ago meant biological heredity. They did not think specifically enough to consider the point at all. The physical organism is transmitted and in a good organism character can be developed, but it must be developed. The strain of the father's great grandfather is very thin by the time it gets to the son, but if the man was a great and good man the father can have much influence with the son in holding up the example and urging him to remember who and what he is. What may be called the environment can pass down from generation to generation without being thinned, and thus "blood will tell" is to be accepted in a much broader than a biological sense.

A somewhat similar distinction can be made between our two men who were promoted at the beginning of these remarks. The one who succeeds in his new position has ability, like the body organism transmitted biologically, and his new environment develops him into right and successful habits of action. They say sometimes that he grows with his job, but "develops" is better.

Sometimes a man, by succeeding, surprises a good many people who thought they "knew" him. They had not been thinking clearly. Success lies largely in one's adapting himself to his environment. We should not be surprised at a man showing great ability to "boss" other men if given the opportunity and assigned the duty of doing so when under a boss he had not shown a disposition to boss. There is a time for everything. Able employers know all this perfectly well. They know that the man who can take orders is the man who can learn to give orders.

It is farthest from the Observer's thoughts to say one word that would detract from the well deserved fame of the late Andrew Carnegie as a judge of men, but what actually occurred in the Carnegie business has been misunderstood by a great many people. Mr. Carnegie had rare ability in selecting men for the various things that needed to be done, but that was only the beginning. Everywhere it is recognized that you cannot make a rabbit pie without first getting the rabbit.

The man, selected, was put into a rare evironment, one with strong developing and stimulating capacity. There was a wonderful esprit de corps, strong rivalry directed by Mr. Carnegie so as to help, not retard, progress towards success of the enterprise, much precept, and the constant stimulation of goals of this sort and that sort being reached.

Mr. Carnegie selected the organism and then provided the environment for development.

Mr. Carnegie boasted of his "thirty three young partners." He never hinted that they were the only 33 men in the United States who could have done what they did, and no one who knows anything about it but would stand aghast at the very notion that Mr. Carnegie would ever have permitted anyone of those men to nurse a thought that he could have made a success of life anywhere else. Quite possibly the majority of them recognized the fact. The original selec-

tion was absolutely necessary, but there were many men in the country at the time. The environment was absolutely essential and could have been matched elsewhere with the greatest difficulty.

There are few of us who have not at one time or another had the experience of seeing a man promoted, or of being given a higher position in some other organization, being surprised at the selection and then learning later that the man had succeeded. We thought we knew the man, having seen him and talked with him for years, while those who put him in the new position had merely looked him over. They looked him over according to a definite formula knowing what they were looking for. We did not, and perhaps were confused by the fact that he seemed to be just in the right place where he was. The fact that a man fits his job is not a proof that he would not fit another job. It may rather be an indication that he is the kind of man who is able to fit a job. Another man may have done all the developing of which he is capable, and can fit only the job he is in. Thus there may be two entirely different kinds of men each fitting the job he is in. Perhaps the poorest prospect is the man who does not fit the job he is in.

THE MANGANESE ENIGMA

Not Enough Manganese Ore Imported to Produce the Ferromanganese Being Made.

The manganese situation in the United States continues as the outstanding metallurgical enigma of developments thus far this year. The mystery, so-called, concerns an explanation of the very large output of ferro-manganese and the correspondingly very small receipts this far this year of manganese ore.

According to the latest statistics the September imports of this ore were 35,175 gross tons. This compares with 36,138 tons in June, which was the largest this year, the receipts for the remaining seven months having been exceedingly small. The September imports bring the total to October 1st to only 162,413 tons, which is less than half the amount brought in, in the same nine months last year. The receipts this year, therefore, are at the lowest rate than in any year in at least the past 10 years. Despite this fact, production of ferro-manganese from manganese ore is exceedingly large.

The enigma referred to, therefore, resolves itself in the following problem.

Theoretically, only about 65,000 tons of ferromanganese could be made from all the ore imported into the country up to October 1st, but there has been produced in American blast furnaces in that period over 193,300 tons of ferromanganese calling for at least 483,000 tons of ore.

In other words, only about one-third of the amount of ore had been imported to October 1st sufficient to produce the amount of ferromanganese already made up to that time.

One explanation offered for this unusual problem is that stocks of ore still existing in the country are being drawn upon heavily to make up the difference.

This seems to be the only reasonable solution and yet, after the history of the last two years is examined, it will be found that in 1921 and 1922 the amount of ore received was about equal to the amount of ferromanganese produced and that, therefore, it would be necessary to go back several years to explain the existence of over 300,000 tons of manganese ore held in reserve and now being used.

The explanation of this unusual situation is also not a scarcity of ore, because the receipts of manganese ore into Great Britain in the same period this year or to October 1st have been in direct and strong contrast to the importations into this country, or in other words, British receipts this year have been over twice what they were last year, whereas American receipts this year have been only half of what they were last year. In actual figures the British receipts of October 1st this year have been 377,925 tons as compared with 187,355 tons to October 1, 1922.

THE IMPERIAL ECONOMIC CONFERENCE

LONDON. — The Imperial Economic Conference was opened at Whitehall on Tuesday, Oct. 2nd, under the presidency of Sir P. Lloyd-Greame. Several subjects are on the agenda, and as the results of the conference are likely to be far-reaching, we give below extracts from some of the principal speeches as taken from the official report.

Sir P. Lloyd-Greame said in part:

....We are all faced with economic problems and difficulties, differing in character and degree, but all of them having a common origin in the upheaval caused by the war and the dislocation and disturbance which have followed in its train. And, as these problems have a common origin, they are, I believe, susceptible to a large extent of a common solution. If we are to co-operate in common or complementary action, this can only be done by meeting in conference, where we can speak with the frankness of partners and with the purpose of partners to work out a policy in which we various parts of the Empire can co-operate to our mutual advantage.

Our position in this country is well known to you. You have watched our industrial development. That development has involved an increasing dependence on export trade, an increasing dependence on imported materials and our capacity to buy those materials is dependent principally on our capacity to maintain our export trade by sales overseas. And throughout all our period of industrial development the maintenance of a growing population has depended upon the concurrent expansion of trade.

Today our export trade is still far below its pre-war volume. This deficiency, fluctuating somewhat in extent, has persisted for many months, and has been and is today reflected in unemployment for a duration and on a scale without precedent. It would be difficult to exaggerate the gravity or the urgency of such a situation. But one fact is plain. We can only restore and maintain steady employment in this country if we can wipe out the deficit in our export trade and, indeed, do something more. It will not be enough to get back to our pre-war volume of trade. Our population has increased, and at the same time the efficiency of methods of production has improved. Consequently, a larger volume of trade is necessary than before the war to maintain employment.

For us, therefore, the vital problem is the problem of markets, the restoration of old markets, but, still more, the development of new markets. While the interdependence of world trade makes the restoration of stable and productive conditions in Europe of great importance, we should realize two facts in this connection. First, even if we assume the most favorable conditions that are practically possible today, the complete recovery of the producing and purchasing powers of parts of Europe must be, at best, a slow process. Secondly, the industrial capacity of Europe was largely increased during and immediately after the war and consequently we shall have to face increasing competition in industrial output. These facts emphasize the enormous importance to us of the progressive development of new markets. And is it not true that for the Dominions and for the Colonies the need of constant and steady markets is hardly less important?

Past Lessons As Future Guides.

Looking at the economic history of the past, there are, I think, two outstanding lessons, which we should do well to bear in mind. The first is that the surest guarantee of industrial prosperity in this country is the development of fresh resources, new fields, overseas. The most prosperous period in our industrial history was, I suppose, unquestionably the period of easy success between 1850 and 1870, a period which coincided with enormous development in America and other parts of the world.

The second lesson may be drawn from the epoch which followed. The effects of the long period of industrial depression which came shortly after the Franco-Prussian war are common knowledge. But what is not so well remembered is that during that depressing time, while for years our export trade to foreign countries showed no increase, while our population was steadily growing, one thing above all others, enabled us

to carry on: the fact that our exports of manufactures within the Empire almost doubled in those difficult years. And let us remember that it was the development taking place in the Empire itself that made that increase of trade possible.

Difficult as the position is today, I feel that, in the light of those two lessons, we may look to the future with hope. The resources of the British Empire are as great as those of the United States. You and we are as anxious to develop them, and I do not believe that together we are less capable of realizing a development comparable with that which has taken place in America. We are all of us anxious to do the greatest possible amount of trade together. You need for the development of your great territories population and capital. As Adam Smith (who was a much better Imperialist than is sometimes supposed) said, "What encourages the progress of population and improvement encourages that of real wealth and greatness."

And, on our part, our needs are complementary. Indeed, in the fullness of time, these problems would work themselves out. Population and capital would come to the Dominions; the resources of the Colonies would be developed. But now is the time of our greatest need. Now particularly is the time when the Empire is thrown back on its own resources. Can we not anticipate its development? That, surely, is the problem which we have to study in its various aspects.

And I would observe that such a policy of anticipation is no artificial or uneconomic specific. On the contrary, if in the years immediately in front of us we can follow a bold and businesslike policy of accelerating the development of Empire and its resources, we shall find immediate relief in our present difficulties, and we shall bring about a greater and quicker increase in the wealth and strength of all parts of the Empire....

Empire Settlement.

....The majority of subjects appear to fall into three broad classes. First and foremost, there is Empire Settlement. Settlement is at once a great objective in itself, and an indispensable means to development of Imperial resources. Settlement on the largest scale possible is as important to this country as it is to the Dominions. It is often said that Great Britain has become over-industrialized. Certainly, if that is not yet true, it is in danger of becoming so in the future. The problem of the adjustment of population, industrial and agriculturally, can only be solved if we treat it as an Imperial problem. And what better aim can we have than to open ever wider in the future for our growing population avenues of opportunity and freer life among our own kin the broad spaces of the Empire?....

Speeding up Development.

Closely allied to the problem of settlement comes the question of financial co-operation between the mother country and the Dominions. The acceleration of development is largely a question of finance. In this country one of the measures (and I think the most sound economically) which we have designed for dealing with unemployment has been the Trade Facilities Act. Under that act we took power to give a Government guarantee to capital issues for works of different kinds, the contracts for supplies and materials being placed in this country.

In this way we have accelerated the putting in hand of sound revenue-producing schemes, such as railway extensions and electrification, which would otherwise have been delayed; and we have thus secured immediate orders for our factories and have speeded up the development of useful undertakings which, in their turn, have provided improved facilities and led to further development.

I hope that it may be possible to devise a policy with similar objects in regard to Imperial development. As I have said, there lies without doubt before the Dominions and the Colonies a period of progressive development. That development is of advantage, immediate and prospective, both to the country developed and to this country. To the country in which the development takes place it brings accretions of population and wealth; to this country it means immediate orders, new openings for emigrants, and an increasing flow of trade in the future.....

Cotton Growing As An Example.

The need and value of such a policy of speeding up development applies at

least as much to the Colonies as to the Dominions; and it is our purpose to pursue this policy in the development of the Colonies. Let me take a concrete example, which, indeed, applies to both. One of the most pressing problems with which one of our greatest British industries is faced today is the supply of sufficient supplies of raw cotton at a reasonable price. There are great tracts of territory within the British Dominions capable of producing cotton of the quality we need; but if these territories are to be developed rapidly and on an adequate scale, large capital expenditure is necessary on transport and irrigation. The more rapid the development, the better. As quickly as the cotton can be grown and transported, it will be absorbed and the territories so developed become sellers of a commodity we here badly need, and increasing purchasers of goods within the Empire.

Given the resources which undoubtedly exist; given the wisdom no less than the desire of purchasing as much as we can of our supplies within the Empire; given the impelling need for all of us to develop an increasing mutual trade under stable conditions, I think we must be convinced that we should give careful consideration to the whole question of accelerating the development of our Imperial resources, and endeavor to work out a businesslike scheme of credit facilities and financial co-operation, in the responsibility for which we should share, and which will be to our mutual advantage.

Imperial Preference.

Concurrently, we are anxious to consider the analogous question of Imperial preference. We in this country are fully alive to, and keenly appreciative of, the value of the preference which we have received under our tariffs. And, on our part, we have definitely established the principle of Imperial preference in our own more limited fiscal system. We wish to apply that principle, within the scope which is practicable for us, so as to stimulate still further the development of Imperial products and Imperial resources. Any increase which it is possible for you to make in the rate of preference will be of real value to us, and will the more enable us to buy from you....

On our part, we shall certainly approach the question of preference with a strong desire to increase our mutual trade, ready and willing to take what action is possible for us and of value to other parts of the Empire to serve that end....

Communications.

Imperial communications have always rightly been a subject of discussion at our conferences. A previous conference established the Imperial Shipping Committee. We shall have the opportunity of considering the valuable work which it has accomplished, and which is set out in its reports. I would refer particularly to the proposal for the establishment of an airship service to Egypt and India, a proposal designed on the commercial side to secure an acceleration in the mail service, on which so much insistence has been laid in the past and with regard to which we have already taken action. Again, there are the steps which have been taken to secure unification in the rules relating to bills of lading, following upon the original proposals of an earlier Imperial Conference.... And, as we come to review the questions which affect our Imperial shipping, it will be proper that we should consider what steps we should take to secure the co-operation of our Governments in safeguarding the overseas carrying trade of the Empire against discrimination by foreign countries.

Other subjects designed to improve our mutual trade are: co-operation in commercial intelligence; the facilities accorded to traders in such matters as the free circulation of trade catalogues and samples; the preparation of Imperial economic statistics; the reciprocal enforcement of judgments; co-operation in the registration of patents, designs and trade marks; the valuation of goods for Customs duties; questions of currency and exchange as between the different countries in the Empire; co-operation in technical research; the immunity of State enterprises. We shall also have occasion to consider Imperial policy with regard to the import and export of live stock.....

An Advisory Body.

....We are aiming at a closer policy of inter-Imperial trade and development. We hope, as the result of our deliberations, to take steps, legislative or ad-

ministrative, which will promote and foster that development.

....If, therefore, we can, as a result of this Conference, take such action as is possible in the immediate future on the important matters which will come before us, and also establish some means of facilitating, both for our Governments and for our producers and traders, the better pursuit of our common aim, the Conference will have fulfilled its purposes.....

Mr. Mackenzie King, Canada, said in part:

....The thought which at the moment must be uppermost to the minds of all present, having regard to what is represented by this gathering, is the vastness of the inheritance which, as members of the British Empire, it is ours to possess. As we think of the different countries represented here, the extent and variety of their resources, their different populations, we must feel there is a very special obligation and responsibility to ourselves and through us to the rest of the world, to make the most of what has come to us in the course of years.

I cannot think of any phase of work to which a Conference of representatives of the Empire could devote itself to greater advantage than the consideration of the economic needs and possible economic development of different parts of the Empire.....

Great Britain's Problems

....It is clear that what at the moment we are seeking to do is to overcome the depression of trade, the dislocation of industry and other ill effects of the war. The situation as far as Britain is concerned is unquestionably serious in some of its aspects. I think we must all be impressed with this. Being nearer to Continental Europe than any other part of the British Empire, and larger in interests, it is perhaps inevitable that your problems of unemployment, dislocation of trade and industry should, if anything, be greater than they are in other parts, but we have all felt the ill-effects of the war in very considerable measure.

Every Dominion, I think, has had its problem of unemployment. Certainly, in Canada within the last few years we have had problems to cope with very similar to those you have here. I think we are beginning to turn the corner, and that the country is again getting upon its feet.....

Individual Enterprise

Moreover, I think it well at this time to recall the factors that have made British industry and trade the world over what it is—namely, that it has been individual initiative on the part of labor, merchants, manufacturers, and on the part of investors of capital. It is to individual initiative that countries must look even more in the future than they have in the past. The war led us to a control of industry by Government and a direction of industry by Government to a degree that possibly the circumstances of the occasion may have justified, but to a degree certainly which has provoked to some extent a reaction against too much in the way of Government interference.

Speaking my own view, I cannot but feel that one of the greatest services Government can render today is, insofar as may be advisable and possible, to clear the channels of trade and communication of obstructions, of whatever character they may be; to make as free as possible, with due regard to existing conditions, the movements of men and money throughout different parts of the Empire, and wherever an obstacle to closer communication and intercourse and development exists, to do what can be done by way of removing that obstacle.....

Canada and Immigration

The President has spoken in particular of two or three outstanding matters to which the Conference should direct its attention; the first was the question of migration within the Empire. Certainly the basis of trade development as the basis of the strength of the Empire will lie in its man-power and in its effective distribution through different parts of the Empire. I would like to say just a word in regard to the Canadian attitude towards immigration.

I have gathered that in some quarters an impression has prevailed that we were not receiving, or rather were not anxious to receive, in large numbers, immigrants from other countries, and in particular from the British Isles. Nothing could be further from the truth than an impression of that kind. We had a serious unemployment problem after the war.....I think we are now to the point

where we can welcome immigration of the right sort to our country, and certainly no stock could be more welcome than British stock of the kind which has helped to make our country and Empire what it is.

It is important, however, that regard should be had to the economic situation of the country, to the position of our industries to what it may be possible for industry normally to absorb. I think it is of importance that labor should have reason to feel that the standards, which it has won, and which it has with effort attained, should not be threatened through any excessive immigration. I believe this body can do very much towards working out an arrangement that will insure the avoidance of the kind of situation that might make the continuous flow of immigration embarassing.....

Mr. Massey, New Zealand, said in part:

Migration Past and Present

....I think I am right in saying that very little inducement was given to emigrants to settle in countries under the British flag. The consequence has been that a majority—I believe a very large majority—of them have settled in countries outside the Empire. Consequently they have been lost to the Empire. I do not envy the Governments of the countries where they have settled, but they have been a decided gain to those countries. It is not too late now to stop what has been going on, and I believe that what has already been done by the British Government, backed up by the Dominions overseas, has been to a certain extent effective, but a great deal more requires to be done.

General Smuts, Union of South Africa, said in part:

....I am sure that we have a great opportunity at present; we have not only passed through the war; we have passed through the difficult period which has followed the war, and we are in a position now to go ahead in the development of the Empire. We have an enormous estate, which is very largely undeveloped, and we would be rendering not only a great service to the Empire and to its various component parts, but to the whole world, if we develop this great estate which has been entrusted to our care.

There seems to be an impression abroad in certain quarters that the Dominions have come to this Conference to make a concerted attack on the settled fiscal policy of this country. Now let me say at once, speaking on behalf of South Africa, that I know nothing of any such conspiracy. There is no such intention to launch an attack upon your fiscal policy. We are leaving the British Government a completely free hand to settle the fiscal policy of their own country, as they have always done hitherto. We respect your freedom of action, and in return we also claim, and, I think you will concede, rightly claim, complete freedom of economic action so far as we are concerned.

The Dominions first attained their independence in the fiscal sense. Our fiscal independence was the first real victory we scored in the old colonial development, and we value it very highly. We have always settled our own fiscal policy, and we come here, as far as South Africa, at any rate is concerned. in no spirit of making any surrender of what we have got, in spirit of bargaining away rights that we have, or trying to induce you to bargain away rights that you have. We come here in a spirit of mutual consultation, to see how we can best, by meeting each others' point of view, develop the trade of the Empire to the fullest extent. That is the spirit in which we come here, respecting your policy and claiming respect for our policy, our freedom of action in developing our various countries to the utmost possible extent.....

Resources of British Africa.

Now, Mr. President, I have said that I think we have a great opportunity at present in developing the resources of the Empire. But the necessity is also laid on us and on you to prosecute this development and to reconsider our old politics. The assumption of the American debt seems to me to be an event which is bound to call for reconsideration of many of your old policies.

The United States of America have not only erected a high tariff wall round their frontiers and debarred many of our products from going to her, but she now claims, and rightly claims, payment of a very large amount of money annually from this country.

The necessity under those circumstances is forced upon this country to develop the Empire as far as possible,

to turn its attention to those portions of the Empire especially which are capable of great development and of producing those articles which in great quantity you still take from America. You have mentioned the matter of cotton.

Cotton is a raw material which, in largest quantity, we still take from the United States. But it is not only the raw material which we take from her; she supplies us not only with cotton, but very largely with copper, and very largely with tobacco; in fact she has supplied us, and still continues to supply us, with a very large number of different raw materials which the Empire is perfectly capable of producing if properly developed.

Mr. Massey has spoken with very great conviction of what has been done in New Zealand. I wish to turn your attention for a moment to another side of the Empire — to the African continent.

The African continent is more than any other a British continent.

With the exception of certain important parts held by France and Belgium and Portugal, practically the whole African continent is a portion of the British Empire. It is capable of producing practically everything which you want by way of raw material. It is said to contain the biggest copper fields in the world. It is capable of producing all the cotton which this great country will need for its industries. It is certainly capable of producing most of the tobacco you want, and the development of this enormous African asset, which belongs to the Empire, is, I think, a task to which, more than ever before, you and we should have to turn our attention in the years to come.

There is a whole continent to develop. It contains all sorts of climate; it contains all sorts of resources in great abundance. It has been very largely neglected, and I am sure that if we go in for a settled policy of developing our great undeveloped African estate and producing those things which we are capable of producing, we shall go far also in providing the means with which to pay off that enormous American liability which hangs like a millstone around your neck. .....

The Question of Preference.

With regard to preference, let me say this. I have said that we do not want to bargain. We gave, many years ago, in South Africa a preference to British products and we claimed nothing in return. That has been our attitude and that remains our attitude. We are not going to bargain, and you are going to be free agents in whatever you are going to do. .....

Course of India Trade.

Mr. Innes, India, said in part:—

I have referred to the fact that India at present exports mainly raw materials and foodstuffs and imports mainly manufactures. I ought to mention that India is not content indefinitely to acquiesce in this position. She has declared recently in favor of a policy of discriminating protection. That is, she proposes to see whether those industries which enjoy a "comparative advantage" in India require protection, and, if so, whether they should be protected.

This is not the time to discuss the merits of this policy. I am aware that it has caused some alarm in this country; but if, as we hope, the result of this policy is to increase the wealth and productiveness of India, then, Sir. those who trade with India have nothing to fear. Already that trade is considerable in volume, but it is small in comparison with the size of the country and the population. In India we have 315 millions of the people—roughly one-fifth of the human race—and if only we can raise the standard of living of those millions and increase their capacity to consume goods, India's potentialities as a factor in international trade and as a market are almost limitless.

For nineteen separate weeks this year the loading of revenue freight has exceeded 1,000,000 cars per week, the total for the week which ended on October 27th being 1,073,965 cars.

This was a decrease of 23,309 cars below the week of September 29th, when 1,097,274 cars were loaded, the greatest ever loaded in one week in history, but, compared with the preceding week this year, this was an increase of 1,084 cars.

The total for the week of October 27th also was an increase of 74,247 cars over the corresponding week last year, and an increase of 122,581 cars over the corresponding week two years ago.

ADDRESS BY ELBERT H. GARY

Pres., American Iron and Steel Institute

At meeting of the American Iron & Steel Institute held in New York, October 25th, Judge Gary said in part:

The Twelve Hour Day

Hearty congratulations are extended to the members of the American Iron and Steel Institute upon the abolition of the twelve-hour day in the iron and steel industry of the United States of America! Long years ago, before most of the business organizations represented here today were created, the twelve-hour working day became established.

To quote the words of Mr. Smith, an intelligent, fair-minded workman connected with the American Sheet and Tin Plate Company, at the annual meeting of the United States Steel Corporation, held in April, 1914: "The employer never established the twelve-hour day.

"Every working man who helped to build up the iron business helped to establish it, and the refusal in many cases to grant the twelve-hour day would have been a sufficient cause for a walk-out many a time."

The hours on duty were long,, though the hard work was largely done by machinery, more and more so as improvements were installed; the compensation per day was comparatively large and the workmen, as a rule, insisted upon a continuance of the practice. Because a committee, appointed by the Chairman of the Steel Corporation in 1911 and headed by the late Stuyvesant Fish, recommended elimination of the twelve-hour day at its plants, provided the iron and steel industry generally would do likewise, the Corporation actively and persistently took steps to carry into practical effect the recommendation referred to. The records of these efforts are preserved and are clear. Considerable and increasing, though not satisfactory, success resulted, until the terrible world war was precipitated, when larger and still larger demand for steel to supply war necessities, first for foreign nations and later for our own country, compelled the utilization by manufacturers of every facility available for largest production. In the dark days of military conflict no one in this country objected to twelve hours work per day. The year after the armistice, for the first time, so far as your President recollects, gentlemen claiming to represent workmen demanded with many other things abolition of the twelve-hour day by the steel industry. This demand soon after became a slogan, used largely by gentlemen not in any way directly connected with manufacturing or with manual labor, but many of whom probably were influenced by good motives. The campaign that followed, the sometimes inaccurate representations and unjust accusations that were made, need not be mentioned, nor even remembered by those who suffered from unwarranted attack. We were helpless, for there was legitimately involved the question of propriety and desirability of continuing the twelve-hour day, and we were unwilling to do or say anything which could be construed as a defense of the twelve-hour day, which in our deliberations we admitted must be abrogated when and as circumstances should permit.

From the date of the Fish report there has never been a statement by a prominent steel manufacturer in favor of the permanent continuance of the twelve-hour day in the steel industry, nor against its abolition whenever practicable.

Finally came the friendly words from that grand and good man who occupied the highest position in the greatest of all nations, the President of our own beloved country. They are of record and are worth repeating: "I know I need not tell you that I am utterly without disposition to meddle in affairs which are of no official concern to me.

"The story comes to me that you are contemplating the discontinuance of the twelve-hour day in the steel plants. I would be perfectly willing, if it seems desirable, to lend any consistent assistance in securing the acceptance of the principle in other large establishments.

"I am only writing to commend and tender any prudent assistance if you really have this plan in mind and you think it desirable to have anything like a concerted effort in the direction of this important change."

Then followed the dinner at the White House, attended by over forty represen-

tative members of the iron and steel industry. Full report of this meeting was made at the annual meeting of the Institute, May 26, 1922. It was then said and published: "The President frankly told all of us what was in his mind. He said: "I declare I have no intention of intermeddling or interrupting and, least of all, of injuring the iron and steel industry. I think there is a well-defined and perhaps a growing sentiment throughout the country against the twelve-hour day and in favor of its abolishment. It seems clear that this cannot be done successfully except by the concerted disposition and action of the industry. I think if we can consistently get rid of the twelve-hour day it ought to be done, and that is as far as I go. If I can be of benefit it would be very agreeable to me.' "

We told the President frankly all the facts, our difficulties and our desires.

Then the President of the Institute, at the White House, and at President Harding's request, dictated a statement of the meeting for publication.

We pledged our co-operation with the President in the effort to eliminate the twelve-hour day in our industry so soon as it should be practicable.

Gentlemen, that pledge has never been violated nor neglected nor its fulfillment unnecessarily postponed.

Everyone familiar with all the facts will testify to the good faith and earnest endeavor of the industry.

Now that you have concertedly, with practical unanimity and with most remarkable promptness, relegated to the past a practice you did not inaugurate, but have been willing to recognize as undesirable, you are entitled to praise for having risen to a great occasion involving, as we believe, no question of morals, but one that became a matter of public interest and concern.

Except for a moderate recession in the volume of our business, which at the psychological moment released a large number of workmen, the change could not have been consummated without further delay.

At no earlier date could there have been secured a concert of action in the iron and steel industry in the effort to eliminate the twelve- hour day.

In bringing about this change we have met many obstacles, some very difficult.

The full facts are not generally known. It is not necessary nor would be useful to relate them at this time.

We have been striving for the accomplishment of a change in business that would meet the demands of a sentiment, which was not one-sided or uncontroverted, as witnessed by volumes of letters we have received; and we are pleased and satisfied.

Steel Trade Responsibility and Stewardship.

The iron and steel business in this country has grown by leaps and bounds until it has become one of the greatest of all the large industries. We have a productive annual capacity of about sixty million tons of steel. We employ a maximum of about six hundred thousand men, who with their families aggregate a population of two and a half million people. We transact a business of two billion dollars or more annually.

Needless to say, we are important in the industrial life of this country. We have a decided influence for good or bad. With this goes a great responsibility. We could not shirk it if we desired. Each one of us must share in and must render an account concerning this responsibility.

More and more the general public will give attention to our stewardship.

We should not resent nor disregard honest or deserved criticism. Even though sometimes, through lack of information or because of vicious motives, there may be unjust criticism, if it is based on a fragment of the truth there should be no objection on our part.

We shall probably be censured unduly and subjected to misrepresentation, as we sometimes have been in the past.

We may be attacked by those who are vicious and unworthy, those whose motives are selfish or corrupt. In the main, however, it is probable sooner or later we shall receive our just deserts, either because claims against us are justified or because, if not, the public will understand and properly decide.

There are, and perhaps will continue to be for years to come, unprincipled men or demagogues or men so selfish and inconsiderate that they do not think or talk sraight, who will antagonize without good reason. Their venom may be directed against any line of business, including our own,

What is the remedy? What is the protection? The answer may be stated in a few words. The affairs of every man and every line of business should be so conducted, continuously, consistently and persistently, that there could be no just cause for reproach.

Even this would not absolutely prevent unreasonable antagonisms, but in the main would result in benefits that would be incalculable.

Let us make for ourselves practical application of these fundamental principles. We desire, we need, the good will of the general public. We wish for the approval and the friendship of all with whom we come in contact, including our employes, our customers, our competitors and our stockholders.

Let us always, to the best of our understanding and ability deal justly by all these groups. Let us not intentionally give ground for reasonable complaint. Let us be considerate, fair and honest and exercise due liberality up to the full limit of consistency and practicability. As a matter of duty, of prudence, of safety, we must resolve to furnish no cause for attack.

If we stand for these principles, yielding and modifying only if and when we are convinced we are wrong, we may feel secure, indeed we shall be successful and may pursue our avenues of activity with composure and serenity.

Of course, we shall sometimes fail.

Failures may be overlooked or excused; but not if they result from intentional wrong.

We shall be threatened with trouble and sometimes assaulted, but good intentions, practically and energetically applied, will provide the best and most effective armor of defense.

There is, even to the dull and impervious mind, an unanswerable reason for the adoption of the principles that have been suggested. It will pay in dollars and cents. It will result in profits, not immediate in some cases, but certain, in the long run, as a general proposition.

Gentlemen, if we firmly establish the reputation which we desire and may attain, we shall build for the American Iron and Steel Institute a monument of which our successors in the days to come may be proud.

Effects of the Great War.

After the colossal world war of destruction of life and property for four years and more, the armistice was signed November 11, 1918. The disasters of this war are not yet appraised. The full cost is not yet known. The final effect will not be ascertained perhaps during the life of any person living when the war was closed. Reparations have not been made. International enmities are at fever heat. Governments have been overthrown, still others have been threatened. Nations have become practically bankrupt. Multitudes of men, women and children have been and are starving. Even national money has become valueless. European countries are drifting, perhaps some toward the rocks of destruction. Suspicion and distrust are predominant in the minds of men. Hate, revenge, brutality, crime are in evidence throughout Europe. A merciful and yet a just God has not yet disclosed to us the fate of our neighbors in Europe.

Our Attitude to the European Situation.

It is doubtful if our Government can at present be of much assistance in attempts to restore the equilibrium of Europe. Voluntary advice or sympathy just now would not be acceptable.

Practically, we can be of benefit only by example.

It would not be appropriate for us to take sides in European controversies nor to condemn individual attitudes or conduct; but we know the great seas are not wide enough to separate us from the influences of disaster in Europe. We are affected in our finances, our commerce, our industries, our civic, political and social life and our morals.

Citizens of Europe are embarking for the United States whenever possible; not always the most worthy are included, which is a pity. Their ideas permeate our social and business life.

The whole structure of civilization has been shaken.

If the European atmosphere and conditions dominated our affairs, our business men might be depressed and somewhat doubtful of the future; but fortunately they do not. We are, or at least we may be, independent of all other countries so far as business progress and prosperity are concerned. If we properly conserve and utilize our natural resources and legitimately manage

our private and public affairs, availing ourselves of the opportunities that are presented, we may and will continuously and adequately prosper.

Protection, Enterprise, Law and Order.

It is not necessary at this time to give facts and figures relating to the growing wealth and enlarging production and corresponding increase of income.

These have been frequently referred to. If these are protected, developed and utilized we need have no fears for the future.

There will be temporary interruptions, recessions, and there will be fluctuations, but the man of business courage, with a rasonably clear vision of the long future, pays little attention to temporary hesitation in business progress. He knows that the current of prosperity in the United States is so strong that even though it may be occasionally modified by unnatural or unreasonable obstructions, this will result in accumulation of volume and force which will soon be overwhelming and stronger than ever before.

As all fair-minded men will admit, the first essential to the welfare and prosperity of a nation and all its people is protection, that is, safety of property and persons, the uninterrupted maintenance of law and order. For this everyone is responsible, more or less, private individuals, public officials, every department of government, municipal, state and national. For the specific administration of government affairs, responsibility is placed upon executive branches and very much depends upon the attitude and disposition of officials.

Therefore the people naturally look to the White House with anxious and hopeful eyes whenever there is a new occupant.

President Coolidge.

Almost before a sad and despondent people had recovered their sensibilities after the sudden death of their greatly beloved and universally trusted President Harding, they began to inquire more particularly into the record of the new President Coolidge.

Some, possibly many, well-meaning citizens went directly to the President and inquired of him as to his convictions and intentions. They received little information except such as they and the general public already possessed, and as to that he was very frank.

However, the character, disposition and intentions of President Coolidge had been registered. His record, his daily life, his principles, his innermost thoughts, had been expressed in his speeches and letters, official and private. It may be assumed that President Coolidge will be governed by the same motives as those which have actuated an honorable and useful life. Consequently the prosperity of this country will apparently have cordial, appropriate and effective assistance from the national Government, limited only by established rules and principles and the general welfare of all the people.

Listen to the words of President Coolidge, uttered September, 1919: "Where the law goes, there civilization goes and stays. When the law fails, barbarism flourishes. Whoever scouts the law, whoever brings it into disrespect, whoever connives at its evasion, is an enemy to civilization." Again July 27th, 1920: "The observance of the law is the greatest solvent of public ills.

"Men speak of natural rights, but I challenge any one to show where in nature any rights ever existed or were recognized until there was established for their declaration and protection a duly promulgated body of corresponding laws." And in January, 1914: "Do the day's work. If it be to protect the rights of the weak, whoever objects, do it. If it be to help a powerful corporation better to serve the people, whatever the opposition, do that. Expect to be called a standpatter, but don't be a standpatter. Expect to be called a demagogue, but don't be a demagogue.

"Don't hesitate to be as revolutionary as science. Don't hesitate to be as reactionary as the multiplication table.

"Don't expect to build up the weak by pulling down the strong."

If the business men will do their part and co-operate with the President and his assistants in conducting their affairs in conformity with the high ideals which we believe actuate the President in the performance of his duties as the chief executive, there is no reason to fear there will be a serious financial or commercial disturbance or depression during the next few months.

There are, as always, some hindrances to the natural progress and prosperity in the United States. Those patent to everyone are the turbulent conditions in other countries, already alluded to; the unreasonably high and burdensome taxes, national, state and municipal; the high costs of production, in some lines unconscionable; and the high costs of living, measurably, though not altogether, brought about by those who complain the most.

Reason for Confidence in Future.

But there are many reasons for confidence in the economic future in this country, outside of those which are basic and permanent, including our enormous wealth and immense yearly income, which increases as the years go by.

For the calendar year the iron and steel industry will show considerable profit, though not as much as the capital invested should produce. The new orders are not up to productive capacity, but together with those heretofore accumulated, have resulted in large shipments. In some lines the demand for immediate consumption has been, and still is, in excess of the ability to supply.

It may be stated with confidence that the outlook is good. Inquiries for iron and steel are unusually large, many of them urgent. Purchases for railroad and general building purposes, for oil development and production, for canning purposes, for the automobile trade and many other lines are now very large as a total and from appearances may be expected to materially increase in volume during the next six months, unless something unforeseen and unwarranted shall be precipitated.

The actual purchasing necessities of our commodities are very great at present, and there is plenty of money to pay for whatever is needed. It is up to business management in every line to take advantage of the opportunities offered. Let us have faith in the future and do our part, proceeding always with good judgment, prudence and within the limits of our resources, but steadily forward towards the goal of the prosperity which we know is ahead and will be greater than ever before.

BOOKINGS OF STEEL CASTINGS

WASHINGTON.—The Department of Commerce announces September bookings of steel castings, based on reports from principal manufacturers. The bookings in September by companies representing over two-thirds of the commercial castings capacity of the United States amounted to 47,574 tons, as against 50,515 tons in August.

The following table shows the bookings of commercial steel castings for the past nine months by 65 identical companies with a monthly capacity of 96,900 tons, of which 38,300 tons are usually devoted to railway specialties and 58,600 tons to miscellaneous castings.

Bookings of Commercial Steel Castings.

Month	Total		Railway Specialties		Misc. Castings	
	Net Tons	Per cent. of Capacity	Net Tons	Per cent. of Capacity	Net Tons	Per cent. of Capacity
1923						
January	100,605	103.8	47,879	125.0	52,726	90.0
February	90,152	93.0	39,845	104.0	50,307	85.8
March	143,564	148.2	76,409	199.5	67,155	114.6
April	90,968	93.9	39,610	103.4	51,358	87.6
May	89,493	92.4	38,788	101.3	50,705	86.5
June	84,878	87.6	42,773	111.7	42,105	71.9
July*	52,066	53.7	16,741	43.7	35,325	60.3
August	50,515	52.1	18,332	47.9	32,183	54.9
September	47,574	49.1	21,685	56.6	25,889	44.2

* Two companies with a capacity of 785 tons per month on miscellaneous castings now out of business.

TOPICAL TALKS ON IRON

CXXVI - Freight Cars

Excepting perhaps the weather, the future of business is the most prevalent single topic of conversation throughout the United States.

When it comes to printed matter it is easily the greatest, for there are innumerable circulars by banks, trust companies and stock and bond houses together with editorials and reports in financial, trade and newspapers.

When there is so great a disposition to talk, the amount of precise information upon which to base the talk is naturally in inadequate proportion.

Certain habits have developed of relating business activity with a few specific things. There has been displayed, moreover, some looseness of thinking, particularly the most common error in all thinking, that of confusing cause and effect.

As to the latter, one often sees reviews of business, referring to demand for "steel," meaning the rolled products of the steel mills, as if such demand creates business activity, whereas it is a result, not a cause. The activity is in the consumption or utilization of steel more than in its production.

That is, if the country made no steel, but imported and employed 30,000,000 tons a year, it would be much more active, with more employment, profits and spending power, than if it made 30,000,000 tons, exported it all, and used none.

As to the habit of relating business activity with a few specific things, it was practically the universal fashion for some time before the war to mention the buying of freight cars by the railroads as the great thing in steel. If the railroads would buy freight cars the steel industry would be prosperous, and then, by reason of this confusion of cause and effect, the whole country would be prosperous. If the railroads did not have the money to buy the cars then the Interstate Commerce Commission ought to raise rates so they could.

Of late the automobile has taken the place of the freight car in this connection. There used to be many men who thought that a large proportion of all the steel made went into freight cars.

Now there are many who think much of it goes into automobiles. Guesses of as high as 40% have been encountered.

It is frequently useful to reduce things to arithmetical proportions.

While the arithmetic may not be exact it is vastly closer than any conception obtained without arithmetic.

The freight car and automobile can be thus compared. The practical way is to use round figures because they can be remembered, for it is better to remember a figure that is nearly right than forget one that is exactly right.

Using round figures, therefore, there are about 2,500,000 railroad cars in the United States, chiefly freight cars, while there are about 12,500,000 passenger automobiles and trucks, which makes a ratio of one to five.

There is about 30 times as much iron and steel in the average freight car as in the average automobile and truck, say 1,400 pounds and 42,000 pounds, or 1,500 pounds and 45,000 pounds, making a ratio of 30 to one.

Automobiles are now lasting about seven years. Freight cars may be taken as lasting half way between 21 and 28 years, which would make a ratio of one to three and a half.

Thus as things are going just at the moment, replacement requirements in steel, automobiles relative to railroad cars, would be the continued product of one to 30, five to one and three and one-half to one, thus:

$$\frac{\text{Railroad Car}}{\text{Automobile}} = \frac{1}{5} \times \frac{30}{1} \times \frac{1}{3\frac{1}{2}} = \frac{30}{17\frac{1}{2}}$$

Or nearly twice as much iron and steel for railroad cars as for automobiles.

This comparison is made on the basis of recent and present conditions. One must also consider the probable trends in the future.

As to numbers, there are perhaps even chances between the automobile and the railroad car. Both are likely to increase considerably. The automobile has of course increased in number vastly more rapidly than the railroad car, but such a difference cannot continue indefinitely.

We used to hear a great deal about congestion on the railroads, but lately we hear instead of congestion on the highways, particularly on Sundays and holidays.

As to weight, there are clear trends in opposite directions.

The automobile has been growing lighter in marked manner, while the freight car has been growing heavier, designed to carry greater and greater loads, in the case of coal and some oth er commodities.

It may be argued that Mr. Ford's ideas may prevail, of using high class steel, roller bearings, etc., on freight cars and thus lightening them, but if so then the number of new cars bought a year will increase sharply, the newer types caus ing the older cars to be abandoned before they are worn out.

The net conclusion seems to be that at the present stage railroad cars are requiring about twice as much steel as automobiles and that in future the proportion is likely to become stronger in favor of the railroad car.

PRODUCTION AND CONSUMPTION OF TIN IN THE UNITED STATES

The report just issued by the U. S. Geological Survey states that only very small quantities of tin ore were mined in the United States in 1922 and that the only tin bearing concentrates, amounting to less than 1½ tons, were obtained from Alaska.

The metallic tin obtained from concentrates produced in tin mining in the United States (including Alaska) during the past eight years were as follows:

(Short tons)

1915	102	1919	56
1916	140	1920	22
1917	110	1921	4
1918	69	1922	1.4

Smelting Industry.

Two tin-smelting plants in operation in the United States produced 9,108 short tons of metallic tin in 1922, wholly from Bolivian concentrates. The producing smelters were those of the American Smelting & Refining Company, Perth Amboy, N. J., and the Williams Harvey Corporation, Brooklyn, N. Y. The smelting of imported tin-bearing concentrate in the United States was begun in 1916 and the smelter output of metallic tin since then has been as follows:

(Short tons)

1916	2,261	1920	17,652
1917	6,065	1921	11,542
1918	10,284	1922	9,108
1919	12,236		

Imports.

Tin concentrate imported into the U. S., 1915—1922.

Year	Short tons	Value
1915	552	$ 182,950
1916	8,040	4,032,460
1917	9,054	4,743,099
1918	18,394	11,444,401
1919	19,196	11,871,948
1920	34,148	18,795,162
1921	15,340	5,672,861
1922	13,804	5,504,434

Tin imported as metal and entered for consumption in the U. S., 1915—1922.

Year	Short tons	Value
1915	57,792	$38,736,909
1916	69,035	51,802,232
1917	72,166	63,860,340
1918	71,254	93,144,218
1919	44,849	50,890,019
1920	62,795	73,440,872
1921	27,101	16,645,719
1922	67,416	40,797,986

Exports of metallic tin from the U. S., 1919—1922, in short tons.

	Domestic*	Foreign†
1919	306	76
1920	706	333
1921	1,154	406
1922	901	329

* Imported as ore and exported as pigs, bars, etc.

† Imported as pigs, bars, etc., and exported as such.

The exports of tin concentrate were insignificant and were not recorded.

Consumption.

The quantity of new (primary) tin made available for consumption in the United States during any year may be obtained by adding the general imports of metallic tin to the quantity of tin produced in the United States and subtracting from the result the sum of the domestic and foreign exports of metallic tin.

New tin made available for consumption in the United States, 1920—1922, in short tons:

1920	79,632
1921	37,083
1922	75,294

The quantity of this new tin actually consumed in the United States during a given year is not susceptible of accurate determination, as a close estimate of the annual consumption is not possible without a knowledge of the stocks in various hands in this country.

U. S. STEEL CORPORATION EARNINGS IN THIRD QUARTER OF 1923

Total earnings of the Steel Corporation in third quarter of 1923 before charging interest on subsidiary company bonds and after deducting all expenses incidental to operation and estimated taxes were $49,112,517. After deducting interest on subsidiary company bonds, the balance of earnings was $47,053,680. The net income after deducting $13,127,769 for depreciation and for sinking fund was $33,925,911 and the balance available for dividends after deducting interest on United States Steel Corporation bonds outstanding and premium bonds redeemed, amounting to $4,917,976, was $29,007,935. After allowing for the regular dividends on common and preferred stock and an extra dividend of ¼% on common stock there was a remainder of $16,349,235. Deducting sums appropriated and expended and for betterments amounting to $10,000,000, there was left a surplus of $6,349,235 at the end of the quarter.

Third Quarter Developments.

Third quarter earnings were only $800,000 less than in the second quarter and about $3,000,000 more than expected because shipments in the third quarter were 475,000 tons less than in the second quarter. **It is quite evident that the change from the 12 to the 8-hour shifts in continuous departments caused only a slight increase in operating costs and that the large rate of capacity employed during the quarter reduced the cost of production while returns from shipments were on a higher level of prices than in the preceding quarter.**

Tonnage Earnings.

It is significant that earnings per ton of shipments in the third quarter amounted to $13.27 against simliar earnings in the second quarter of $11.67. In July when shipments amounted to 1,112,998 tons earnings were at the rate of $14.16 a ton. In August when shipments amounted to 1,250,000 tons, earnings were at the rate of $13.42 a ton, while in September when shipments had receded to 1,150,000 tons, earnings were at the rate of $12.39 a ton. Tonnage earnings therefore, were the largest in July and there was a decrease in August and a further decrease in September pointing to a further decrease in tonnage earnings during the last quarter of the year.

Second Quarter 1923.

Tonnage earnings in the second quarter amounted to $11.67 a ton, shipments at that time aggregating 3,987,590 tons. Shipments in the third quarter were reduced to 3,512,998 tons. In April tonnage earnings were $11.08, in May $12.21 and in June $11.67 per ton.

First Quarter 1923.

In the first quarter of 1923 when shipments amounted to 3,925,000 tons, earnings amounted to $8.86 a ton, January earnings being at the rate of $8.13 a ton based in shipments of 1,300,000 tons, February earnings being at the rate of $8.04 based on shipments of 1,185,000 tons and March earnings $10.20 a ton based on shipments of 1,440,000 tons.

Third Quarter 1922.

In the third quarter of 1922 earnings were at the rate of $10.17 a ton based on shipments of 2,700,000 tons, the monthly record being as follows: July $9.45 a ton based on shipments of 1,040,000 tons; August earnings $12.50 a ton based on shipments of 850,000 tons and September earnings $8.56 a ton based on shipments of 810,000 tons.

Plant Operations.

In the third quarter of this year plant operations of the Corporation averaged 86.8% of capacity, the average in July being 85%, in August 88½% and in September 87%. In the second quarter of 1923 the average was a little over 94% of capacity, the April average being 94%, May 96% and June 92½%. In the first quarter of this year operations averaged 90.4%, the January average being 88%, February 89.8% and March 93.6%. In the first half of the year the average was 92.28%.

In the third quarter of 1922 operations averaged only 67.6%, the July average being 71.3%, August 66% and September 65½%.

It is notable that while the average in July this year was 85%, in the first week of the month operations dropped to 68% of capacity when the usual advantage was taken of Independence Day to make the usual half-yearly repairs.

During the month of October average plant operations have been little over 89½%, that is, at a larger rate monthly than at any time since June. Thus out-

put and shipments have increased but orders have not maintained the increase brought about in September

Earnings in Quarter Ended Sept. 30, 1923.

	Before charging interest on Sub. Co. bonds	Less interest on Sub. Co. bonds	Balance of earnings
Sept.	$14,974,695	$685,485	$14,289,210
Aug.	17,683,045	685,578	16,997,467
July	16,454,777	687,774	15,767,003
Third quar.	$49,112,517	$2,058,837	$47,053,680
Quarter Ended June 30, 1923.			
June	$16,450,923	$691,405	$15,759,508
May	18,392,070	693,395	17,698,675
April	15,097,037	697,049	14,399,988
Second quar.	$49,940,030	$2,081,849	$47,858,181
Quarter Ended March 31, 1923.			
March	$15,389,636	$697,989	$14,691,647
Feb.	10,225,251	698,070	9,527,181
Jan.	11,259,788	698,547	10,561,241
First quar.	$36,874,675	$2,094,606	$34,780,069
First half	$86,814,705	$4,176,455	$82,638,250

Nine Months' Earnings.

	1923.	1922.	1921.
Net earn'gs	$129,691,930	74,095,269	73,096,796
Deprec., skg.fd.,etc.	38,410,310	30,602,666	28,439,686
Net inc.	$91,281,620	43,492,603	44,657,110
Int. U. S. bonds..	14,891,522	15,067,918	15,401,277
Balance	$76,390,098	28,424,685	29,255,833
Pref. divs.	18,914,757	18,914,757	18,914,757
Ex. com. divs. ..	1,270,756	.....	.....
Com. divs	19,061,343	19,061,343	19,061,343
Surplus.	$17,143,242	*9,551,415	*8,720,267
Reserved for imp.	20,000,000	.....	.....
Surplus.	$17,143,242	*9,551,415	*8,720,267

* Deficit.

Comparative Earnings.

The following table gives the earnings by months for the previous four quarters as compared with the preceding two years:

	1923.	1922.	1921.
Sept.	$14,239,210	$7,019,590	$7,257,687
Aug.	16,997,467	10,615,085	6,502,976
July	15,767,680	9,833,664	5,157,295
Tot. 3rd quar.	$47,053,680	$27,468,339	$13,913,058
June	$15,759,518	$10,712,004	$15,759,741
May	17,698,675	8,821,887	15,205,518
April	14,399,988	7,750,054	12,190,446
Second quar.	$47,858,181	$27,286,945	$43,155,705
Mar.	$14,691,647	$8,505,166	$7,741,352
Feb.	9,527,181	6,180,685	10,157,896
Jan.	10,561,241	4,654,134	14,387,474
First quar.	$34,780,069	$19,339,985	$32,286,722
Tot. first half	$82,638,250	$46,626,930	$54,178,738

	1922.	1921.	1920.
Dec.	$9,322,687	$4,967,237	$12,009,500
Nov.	9,603,351	6,440,288	13,092,919
Oct.	8,566,354	8,204,358	16,775,443
Fourth quar.	$27,552,392	$19,612,033	$48,877,962

Comparative Earnings Statement.

	3rd quar. 1923.	2nd quar. 1923.	3rd quar. 1922.
Total earn'gs	$47,053,680	$47,858,181	$27,468,339
Depr. reserve	10,686,745	10,625,664	8,810,741
S.F. bonds	2,441,024	2,404,133	2,360,204
Net Income	$33,925,911	34,828,384	16,297,394
Interest bonds	$4,660,476	$4,706,772	$4,773,296
Prem. bonds redeemed	257,500	257,500	200,000
Bal'ce	$29,007,935	$29,864,112	$11,319,093
Pref. div.	6,304,919	6,304,920	6,304,919
Com. div.	6,353,731	6,353,782	6,353,781
Extra com. div.	1,270,756	.....	.....
Surpl.	$15,078,479	$17,205,410	*$1,339,602
Improvements	$10,000,000	$10,000,000	.....
Net Surpl.	5,078,479	7,205,410	*1,339,602

* Deficit.

Balance for Dividends.

Balance available for dividends on common stocks in third quarter was equal to 4.44% or at annual rate of 17.76%. This compares with 4.63% or at rate of 18.52% per annum in preceding three months, 2.20% or at rate of 8.80% per year in quarter ended March 31st last and 0.98% or at rate of 3.92% in quarter ended Sept. 30, 1922.

Dividends Declared.

Common dividends of 1¼% and extra ¼% are payable December 29th, books close November 28th, reopen December 3rd. The preferred dividend of 1¾% will be payable November 28th, books closing November 3rd and reopening November 7th.

Gary on Steel Situation.

Judge Gary in discussing steel situation after the meeting said:

"Earnings for third quarter have been fairly good, and as we see it the outlook is pretty good. New business is large enough to keep our plants operating. It is natural for orders to fall off to some extent during the Summer and in early Fall. At present new bookings are only about half of our productive capacity, but our inquiries are very large.

"Apparently there is a good deal of business shown in inquiries which may be passed on to actual contracts in near future. The necessities of purchasing public are large, and their ability to pay is sufficient. Just how much the volume of business will be in near future we cannot say, but we feel confident on the outlook if nothing unforeseen happens."

Extra Dividend Was Not Considered Until at the Meeting.

Judge Gary stated that the extra dividend was not even considered by anyone until it was brought up at the meeting at 3 o'clock. This is indicated by the fact that quarterly report given out after meeting of directors had allowed for the deduction of only the regular quarterly dividend of 1¼% on the common stock and no allowance was made for any extra dividend in any item in the statement.

AMERICAN AND BRITISH STEEL EXPORTS COMPARED

While steel exports from the United States in September were moderately fair, compared with other months this year, the total still falls far below what it should be and offers a poor showing in comparison with that of Great Britain. September exports were 172,499 gross tons or the third largest this year. The peak was in May at 203,389 tons but in 1913 the average per month was nearly 250,000 tons. The comparison between the United States and Great Britain for the first nine months of this year is shown by the following table:

	American	British
January, 1923	123,190	370,028
February	133,902	324,460
March	163,920	380,136
April	177,471	398,507
May	203,389	435,630
June	171,183	373,277
July	168,558	314,522
August	161,426	330,431
September	172,499	344,358

This table clearly shows the trend and the contrast. For the first nine months of this year British steel exports have been 363,483 tons per month whereas the American have been only 163,943 tons per month. The British have therefore been over double the American which is a striking contrast when it is remembered that the output of the American industry is about sixfold larger than the British.

Contrasted with pre-war records, the British rate thus far this year of over 363,400 tons per month compares with about 420,000 tons per month in 1913. The present American rate of exports, however, of about 163,900 tons per month compares with about 250,000 tons per month in 1913. The British industry has therefore recovered nearly 90% of its pre-war foreign trade in iron and steel whereas the American has recovered only about 70%. With a much larger capacity the American industry will need to cultivate more intensely its foreign trade in the near future.

TECHNICAL AND COMMERCIAL ABSTRACTS

World's Economic Recovery—In summing up the declaration of principles uttered by the American Bankers' Association at their annual convention in Atlantic City recently, wherein they urged a moral and spiritual regeneration as an aid to the world's economic recovery, the **Manufacturers' Record** says: "The American Bankers' Association has lifted high above all petty questions of politics, of economics, of ordinary business problems, the one great outstanding, all-embracing truth that for the safety of business and for the safety of civilization the world needs and must have a worldwide moral and spiritual regeneration. That such a statement has been sent forth by the Bankers' Association will strengthen every moral force of this and every other country."

IRON AND STEEL

A Day at the Ford Plant—Under the above heading, W. Trinks writes an interesting article for **Fuels and Furnaces**, giving an account of the great variety of furnaces that are employed at the Ford plant in order that heat treating may keep pace with production requirements. Mr. Trinks, who is a professer of mechanical engineering at the Carnegie Institute of Technology, opens his story by saying: "When heat treating was first introduced at the works of the Ford Motor Company the furnaces were housed in a seperate building, which contained the forging and heat treating departments. This arrangement kept the machine shop cool, but it resulted in a great deal of extra haulage. For that reason the furnaces were, in the almost continual rearrangement of the plant, transferred to the various shops and placed at the point where the heat treating should occur in the logical course of manufacture. During the repeated relocation of the furnaces a great deal of development work went on; fuels and sources of energy were changed, and different types of furnaces were tried. In this respect the Ford Motor Company does not differ from any other progressive concern. It is a case of progress with the rest or fall behind."

Iron Analysis Proposed—"In connection with the visit of the American Foundrymen's Association to England, a movement has been started to revise the grading of British pig iron for export," says **The Foundry.** "As already reported by cable, negotiations in connection with this question are being conducted by Dr. Richard Moldenke, of Watching, N. J., and Walter Wood, of the R. D. Wood Company, Philadelphia, acting in their official capacity as chairman and vice chairman respectively of Committee A-3 on cast iron of the American Society for Testing Materials. Dr. Moldenke and Mr. Wood also are acting informally for the American Foundrymen's Association under the advice of the president, G. H. Clamer. A circular recommending the proposed classification is being distributed to leading British manufacturers of pig iron through the agency of the National Federation of Iron and Steel Manufacturers. This proposed classification, of course, has no reference to the grading of British pig iron for the domestic market, but it is believed that should it be adopted for export it would facilitate the sale of British pig iron in the United States."

Power Plant Problems in Steel Mills—L. B. Breedlove, a consulting engineer of Chicago, writing in the **Iron Age** on this subject, opens his rather lengthy article with this paragraph: "Any decided reduction in the cost of power required to produce a ton of steel in the finished state will vary the total cost per ton only a fraction of a per cent, as considered by past practice, yet the item is fast becoming of more importance. Rising costs of coal, difficulties of transportation and the possibilities of closer margin of profit have quickened the effort to utilize all available heat units. It is a common mistake for the engineer to design a power plant of good efficiency yet lose sight of the fact that the investment must be as low as possible. Operating costs and interest costs should never be separated. One is as much a part of the cost of energy as the other. The lowering of the cost of production in a power plant depends on getting the maximum amount of work out of the investment; consequently, to

meet the competition now offered by the central stations and to care for the increasing demands of the steel industry successfully, the power engineering must follow a broad and comprehensive policy."

The Use of Metal Airplanes — "In almost every change in transportation methods we have seen in initial developments the use of wood in structure whenever possible, and then noted its abandonment for metals—in shipping, railways, bicycles, automobiles, and now the airplane," says the **American Machinist.** "The dirigible is perhaps the only exception. Those of us who have followed aircraft closely look back and shudder at the early contraptions in which men risked their lives in their enthusiasm for the development of the new science. No pioneers ever dared more for science than the early fliers who courageously explored the unknown air currents in machines built of wood or bamboo, fastened in the crudest manner, and braced together with wire of unknown length. How these machines ever held together will always be one of the unsolved mysteries, and it is little wonder that very few of the original fliers are still with us. Slowly but steadily, however, the use of metal has forced its way to the front. First in the shape of fittings by which the wooden struts and beams were held together, but gradually extending to other parts of the structure. Several of the pioneers, such as Sturtevant, attempted metal construction early in the game.

And though they did not entirely succeed, they aided in the development of aircraft. Others have followed, and by degrees the use of metal is growing, although less rapidly than would be the case were airplane manufacture an established industry, for wood lends itself to small quantity production better than metal."

Iron Ore Beneficiation—A comprehensive study of the problem of iron ore beneficiation has been undertaken by Department of the Interior at the southern experiment station of the Bureau of Mines, Tuscaloosa, Ala. The first part of this work consisted in the compiling of a list of the companies doing work of this nature. A survey was started in the Birmingham district by Oscar Lee, assistant metallurgist. The purpose of this survey is to acquire information regarding all the plants in operation, as well as others which have been abandoned. It is believed that such information will furnish data from which it will be possible to determine what might be expected in the future from new methods. Definite information regarding the success of any particular type of machine or method of beneficiation will be available, and it will be possible to summarize the work which has been done throughout the country in this connection. This work was transferred from the North Central station of the Bureau of Mines, Minneapolis, to the Southern Experiment station, at Tuscaloosa, on July 1.—**Iron Age.**

Steamed Coke in Blast Furnace—Recent studies at the Pittsburgh experiment station of the United States Bureau of Mines have revealed some interesting facts as to the probable behavior of steamed coke in the blast furnace.

The literature on the chemistry of the blast furnace was thoroughly reviewed, and with this information in mind the probable behavior of the coke sulphur in the blast furnace was deduced.

Enough small-scale tests were conducted to furnish a check on most of the important deductions, and the conclusions derived therefore accord with what is already known in regard to the forms of sulphur in coke, and fit in well with the general opinion concerning blast furnace reactions. The results of this study suggest two possible methods for correcting the coke sulphur trouble in the blast furnace: First, this surface sulphur could be removed by some such process as steaming, or hydrogenation, or, secondly, it could be prevented from entering the spongy iron at the zone by dipping the coke in some material which would absorb the sulphur more readily than would the iron.

Possibly lime could be used in this case, but whatever the nature of the substance it should be such that it will not interfere with the proper combustion zone. Further studies along this line would no doubt lead to some interesting discoveries as to the behavior of the sulphur in the blast furnace.—**Iron and Steel of Canada.**

Improved Quality Aids Industry—"Production of malleable iron castings in the United States has more than doubled in the past ten years," says **The Foundry**. "This is a remarkable record for an industry. It was accomplished by two means—improvement in the quality of the product and advertising. Not only was the quality of the iron in the castings improved, but through banding in an association malleable iron producers have been able to guarantee the product from certain foundries which have produced iron meeting specifications that have been made more severe as the foundries through improved practice have been able to meet them. In the early days, when bars from different foundry members of the association were tested at a central laboratory, the record of tests was poor. The average ultimate strength in 1912 was 35,000 pounds per square inch and the elongation 5% in 2 inches. Eleven years later, in one month of 1923, the average tensile strength shown by tests from 60 foundries was 54,474 pounds per square inch, while the average elongation in each case was more than 23% in 2 inches, and in one case of more than 25%.

The advantage of this record is limited by the number of users of malleable castings who are aware of it. Appreciating this fact, the Association of Malleable Iron Producers have maintained a campaign of enlightenment to bring to the attention of users of malleable iron the improvements being made in the quality of malleable iron.

Further, they have been instrumental in raising the requirements of specifications for malleable until now a tensile strength of 50,000 pounds per square inch and an elongation of 10% in 2 inches is demanded."

MACHINERY

Tool Builders Aim High—"Reading between the lines of the account of the meeting of the National Machine Tool Builders' Association, friends of the tool industry may find facts of gratifying significance," says the **Iron Trade Review**.

"Officers of the association apparently agree that business during the next few months will not be brisk, yet this forecast in no way dampens the ardor of members in their efforts to improve the status of their industry. On the contrary, the meeting held recently reflected a more earnest desire to carry out the provisions of the association's program of constructive development than has been manifested in recent years. Tool builders clearly are determined to win respect for their institutions and a sympathetic understanding of their problems. All of these activities are prompted by the highest motives, and the machine tool business cannot help but benefit from the results of the present constructive program.

As users of tools throughout the wide field of manufacturing become more familiar with the problems, aims and efforts of the members of the association, they will have a still higher regard for those who build "the master tools of industry."

Lower Temperature for Welding Urged—"To compensate for the lower melting point of cast iron as compared with steel, the Metal and Thermit Corporation, of New York, recommends that in preheating cast iron sections, preparatory to thermit welding them, these sections be heated only a little more than necessary to show color, such as a dull red heat. If this advice is followed, it is said, a quieter pour will be obtained and the fusion will be just as thorough.

This practice has been tried successfully in numerous cases, the most important case being a thermit weld on a large cast iron press head which required 1,100 pounds of thermit. The weld was apparently sound with fusion to the extreme of the edge of the collar, although the cast iron section was heated only to a dull red heat. It is believed that this point is important to bear in mind, and that operators will find that it will overcome difficulties which they may be experiencing in cast iron welding.—**The Foundry**.

Automobile and Truck Preference in Ontario—It is estimated at the present time that 40% of the automobiles in use in Ontario, Canada, are closed models, which are rapidly gaining in popularity, states a report from the Department of Commerce. In some instances dealers report that 70% of their sales during the past year were closed models, and all believe that the principal market in the future will be for this type—practically no European cars are sold. As

in the other provinces of Canada, price, service facilities and gasoline consumption are determining factors in automobile sales. The nationality does not influence prospective purchasers of either truck or passenger cars. About 75% of the trucks in use are light trucks up to and including one ton. About 15% are delivery wagons and the balance are heavier trucks of various types.—**American Machinist.**

RAILROADS

Treated Ties on Main Line Tracks—When considering the use or the extension of the use of treated ties, a railway management is confronted with the necessity of deciding whether these ties should be placed first in main lines or in branch lines, because it is seldom that a road launches on a program of preservation sufficiently broad to cover its entire requirements at once. If the practice which has been followed most generally to date is accepted as the criterion, they should go into the main lines first. However, the subject is so important and the expenditure so large that it warrants thorough consideration.

It is the busy main lines that carry the heaviest traffic. It is here that the life of ties is shortest because of the severity of the service required of them.

Furthermore, these lines must be maintained to higher standards, while the volume of traffic handled warrants the expenditure of larger sums for maintenance. Treated ties cost more than untreated ties, and the first effect of adopting them is to increase the tie renewal charge, for the economy comes only after the normal life of the untreated timber is exceeded. All of these considerations have influenced the very general use of treated ties first and frequently exclusively in main lines.—**Railway Age.**

Australian Plant Will Need Equipment—The Washington correspondent of the **Iron Age** says: "The state government of Australia has authorized the chief commissioner of railways to replace the present railroad workshops at Islington with an entirely new and modernly equipped plant. The buildings and equipment, according to official estimates, will cost not less than 200,000 pounds sterling. The work will begin at an early date. Some idea of the importance of the shops is obtained from the fact that there are about 2,350 miles of railroad lines on which about 500 locomotives are run. The plant is to be equipped with modern machinery such as any up-to-date railroad shops require, and most of the equipment will have to be imported."

Railroad Offers Stock as Prizes for Essays—"Announcement has been made that the Pennsylvania railroad system is offering approximately $1,000 in prizes in an essay contest, open to all employes, on the subject of "The benefits of employe ownership of stock and securities of the Pennsylvania railroad through the Employes' Provident and Loan Association," says the **Railway Review.** "In each of the four operating regions, at the Altoona works, and in the general offices, three prizes are being offered for the best essays written by the employes. The first prize will be two shares of stock in the Pennsylvania railroad company, the second prize one share of stock, and the third prize a credit on the books of the Provident and Loan Association amounting to half the cost of one share of stock. In all eighteen shares of Pennsylvania railroad capital stock will be awarded outright, and half payment on six other shares will be credited to the winners.

The essays are limited to 500 words, and the contest throughout the system is being conducted under the auspices of the 'Pennsylvania News,' the regional newspaper for employes."

Would Segregate, Not Merge—"You are on the wrong line in talking of consolidation of the railroads. What is needed is segregation, as the roads have all the business of their own that they can handle," declared President E. E. Loomis, of the Lehigh Valley railroad, to the Interstate Commerce Commission and the Port Authority on the belt line railroad proposal for New York. "The harbor here has greater facilities than any I know of," he continued. "It has a water belt line which I believe is much more effective than a railroad belt line.

I believe the port of New York needs more than anything else better vehicular transportation facilities between New York and Jersey City. If the Port Authority could get the state to build a bridge or vehicular tunnel, it would be

doing something constructive to relieve the situation." Mr. Loomis said he was perfectly willing to open his line to any other road that wants to use it. The three presidents chiefly interested in the belt line proposed having their local superintendants form an operating committee and appoint an official in charge of the belt line to expedite the movement of traffic. Mr. Loomis believed this would be much more satisfactory and would serve the shippers better than independent operation.—**American Industries.**

LABOR

Heat Transmission Through Steel Pipes—In a study of transmission of heat through steel pipes, being conducted at the Pittsburgh and Minneapolis stations of the Bureau of Mines, Department of the Interior, work on several sizes of steel pipes, calorized and plain, has been completed. Further tests will cover 2, 4 and 6-inch pipes. Air velocities and temperatures in the heating chambers, as well as the size of pipes, are being varied over appropriate ranges. Temperatures are being measured in the center of the pipes and in the heating chamber one and two inches from the outside wall. It has been found that steel pipes offer a higher resistance to the transmission of heat after calorizing than before. Under the conditions of the test but slight effect was noticed on the calorized pipe, while the plain steel pipe oxidized quite readily. The results obtained furnish a basis for the design and construction of preheaters.—**Iron Age.**

Light as a Safeguard—"Casualty statistics for many years were full of records concerning industrial accidents, machine-butchered hands and arms and feet, cuts and bruises from tools, broken limbs and heads from falls, and similar unpleasant items in the day's work," says the **Electrical World.** "Fortunately the safety campaigns of various agencies, including notably the National Safety Council, have done much to reduce the number of such injuries. But they are still too many. It is somewhat surprising that more emphasis has not been placed upon light as a most effective agency in the reduction of industrial accidents. The experimental proof of the increased accuracy and speed of vision with increased intensity of illumination points directly and with emphasis to the increase of lighting facilities as a safety measure. For when a man sees danger clearly and quickly he seldom intentionally walks into it. There are few mechanical guards so effective for safety as good light. And, what is of further value, light is the only guard which at the same time increases the efficiency of the workman."

Steel Leads in Safety Work—"Workmen in the iron, steel and metal working industries are surrounded in their daily duties by greater protection from bodily injury against the necessary hazards of the business than in any other line of manufacturing effort," says the **Iron Trade Review.** "This was demonstrated at the national meeting at Buffalo of those who by intelligent and scientific methods are directing the prevention of avoidable injury in all lines of human endeavor. For the iron and steel industry to hold the acknowledged leadership in this field, where such great progress has been achieved in recent years, speaks well for the standards of advanced thought and enlightenment that prevail among those directing the policies of this branch of enterprise.

No less distinguished authority on industrial casualities than Sir Thomas Oliver, ranking British specialist on industrial poisons, has bestowed upon the American iron and steel industry the leadership in the worldwide movement toward the preservation of human safety and the everyday tasks of life.

Sir Thomas declares that the general safety movement that is going forward in all countries today had its inception among American industries.

FOREIGN

Mexico and the United States—"The present volume of trade with Mexico is greater than the movement between the United States and any other Latin-American country, with the exception of Cuba and Argentina," says **American Industries.** "For the seven months ended with July we sold to Mexico around $69,000,000, and we bought from Mexico $83,000,000. Estimates of the value of American property holdings in Mexico show an amount of $500,000,000 as a conservative figure, and now that they are free from fear of unexpected taxa-

tion or confiscation, it is logical to believe that the holdings will be largely developed. The National Association of Manufacturers of the United States feels highly satisfied with the clearing of the political skies, as among its members it counts a large majority of those who are sincerely interested in the welfare of our neighbor country and in cultivating a mutually advantageous friendship between the peoples of the two sister republics."

Japanese Machinery Requirements—Machinery for the re-equipment of the Japanese factories will undoubtedly be needed, and most of it will come from the United States and Great Britain, which in the past have divided Japan's machinery trade almost equally between them, states the Department of Commerce in a recent trade information bulletin. The principal industry in Yokohama was shipbuilding, and there were a number of industries at Kawasaki, midway between Yokohama and Tokio, including a phonograph factory, a cement works, an electric-bulb plant, and an iron-pipe manufacturing establishment. Most of the foreign firms importing machinery and iron and steel products had head-quarters in Tokio.—**American Machinist.**

Half Million Tons Seized in Ruhr—Mineral ore, crude, semi-finished and finished iron and steel seized in the Ruhr and held by Franco-Belgian authorities are said to have totalled between 500,000 and 600,000 tons, Commercial Attache C. L. Jones informs the Department of Commerce. The French iron and steel industry has been anxious to avoid any repetition of a weakened market such as occurred in several lines during the disposal of the war stocks.

The ores can be turned over to commercial organizations for sale, and the scrap distributed to blast furnaces.

The sale of a quantity of semi-finished steel should not affect the market, as the industry reports rather limited stocks at present. The finished steel, rails, beams and various mixed products, present a problem. The total is estimated to be about 200,000 tons.

French merchants are unwilling to see these put upon the domestic market promptly, and proposals have been made to turn over some part of the tonnage to the companies doing reconstruction work in the liberated region. While no definite plan has been adopted, it appears clear that both the government and the industry are anxious that the material shall be marketed in a way to affect price levels as little as possible.—**Iron Trade Review.**

Britain Buys More United States Autos—The British imports of passenger car chassis from the United States increased to such an extent during June that the month's total of automobile imports from this country were about 60% greater than in May. The total British imports of automobiles, however, declined by nearly 7% during the same period. The May total of complete passenger cars imported were 2,380; the decrease to 1,597 during June reflects the seasonal falling off in car sales which begins with early Summer and continues usually until the Autumn buying starts. The 584 cars shipped from the United States mark the first occasion since August last year that United States shipments exceeded those from Canada. The 949 passenger car chassis imported from the United States in June is the largest number from any country during a single month, and nearly double the total of 484 from all countries during the month of May.

While the number of complete trucks imported during June remained practically the same as May, the value showed a marked increase.—**American Machinist.**

MISCELLANEOUS

Some Labor Tendencies—Recent developments of importance in the relations of capital and labor indicate a different attitude on the part of the labor leaders," says the Iron Age.

"To what extent conditions will be permanently improved no one can predict at the present time, but certain changes of policy are entitled to receive thoughtful consideration. The admission by the secretary of the committee representing fourteen international unions that the effort to organize the steel workers of the country has been coolly received, not only by wage workers, but by international union officers, since the substitution of the eight-hour and the ten-hour day for the twelve-hour day is virtually a surrender on the part of

(Continued on page 570)

COMPARISON OF METAL PRICES

	Range for 1921.		Range for 1922.		Range for 1923.		Closing Oct. 31,
Pig Iron.	High.	Low.	High.	Low.	High.	Low.	1923.
Bessemer, valley	32.00	20.00	33.50	19.00	31.00	25.00	25.00
Basic, valley	30.00	18.00	30.50	17.75	31.00	22.00	22.00
No. 2 foundry, valley ...	33.00	19.50	35.50	18.75	31.00	22.50	22.50
No. 2X fdy. Philadelphia	33.79	19.84	34.76	21.34	33.16	22.64	22.64
No. 2 foundry, Cleveland	33.56	20.56	35.50	19.56	32.50	24.26	24.26
No. 2X foundry, Buffalo .	31.25	19.00	34.25	19.50	30.25	21.50	21.50
No. 2 foundry, Chicago ..	33.00	18.00	33.00	18.50	32.61	24.61	24.61
No. 2 Southern, Birm. ...	34.00	16.50	28.00	15.00	27.00	19.00	19.00
Scrap Iron and Steel.							
Melting Steel, Pittsburgh	17.00	12.75	22.00	14.00	27.00	15.00	15.25
Heavy steel scrap, Phila.	16.00	10.00	19.00	11.00	26.50	15.00	15.00
Heavy melting steel, Chi.	16.50	10.00	19.00	11.00	24.50	13.00	13.25
No. 1 cast, Pittsburgh ..	22.50	15.00	25.00	16.00	27.50	19.00	19.25
Iron and Steel Products.							
Bessemer rails, mill	45.00	40.00	43.00	40.00	43.00	43.00	43.00
Iron bars, Pittsburgh	3.06	1.85	2.55	1.80	2.82	2.35	2.70
Iron bars, Philadelphia ..	3.85	1.80	2.58	1.70	2.82	2.32	2.67
Steel bars, Pittsburgh ..	2.35	1.50	2.25	1.35	2.40	2.00	2.40
Tank plate, Pittsburgh ..	2.65	1.50	2.50	1.35	2.50	2.00	2.50
Structural shapes, Pitts..	2.45	1.50	2.25	1.35	2.50	2.00	2.50
Grooved steel skelp, Pitts.	2.45	1.50	2.10	1.40	2.50	2.00	2.40
Black sheets, Pittsburgh.	4.35	2.75	3.75	3.00	4.00	3.35	3.75
Galvanized sheets, Pittsb.	5.70	3.75	4.75	4.00	5.50	4.35	5.00
Tin plate, Pittsburgh ...	7.00	4.75	4.75	4.60	6.00	4.75	5.50
Wire nails, Pittsburgh ..	3.25	2.50	2.70	2.40	3.00	2.70	3.00
Steel pipe, Pittsburgh...	57½%	71%	66%	71%	62%	66%	62%
Connellsville Coke at Ovens.							
Prompt furnace	5.00	2.75	15.00	3.75	9.00	3.75	3.75
Prompt foundry	7.00	3.75	16.00	3.75	9.50	5.00	5.25
Metals — New York.							
Straits tin	65.00	32.50	39.00	25.50	51.50	37.50	41.75
Lake Copper	20.50	13.75	14.00	12.00	17.50	13.00	13.00
Electrolytic copper	19.50	12.75	13.75	11.50	17.25	12.45	12.50
Casting copper	19.25	12.75	13.00	11.25	16.87½	12.25	12.25
Sheet copper	29.50	22.50	21.50	19.50	25.50	19.25	20.25
Lead (A. S. & R. Co. price)	9.25	4.75	5.00	4.00	8.25	6.00	6.75
Zinc (spelter)	9.85	6.00	6.10	4.25	8.35	6.00	6.67½
Chinese and Japanese Ant.	11.62½	5.20	6.00	4.45	9.00	6.25	8.75
Aluminum, 98-99%	32.75	22.00	26.00	17.00	26.50	22.50	25.50
Silver	137	59¼	73⅝	52⅝	73¾	62.25	63.37½
St. Louis.							
Lead *	9.15	4.45	5.05	3.90	8.50	5.67½	6.45
Zinc (spelter)	9.50	5.50	5.60	4.12½	8.00	5.75	6.32½
Sheet zinc (f.o.b. smelter)	12.50	11.50	11.50	8.50	10.00	8.90	9.25
London.	£	£	£	£	£	£	£
Standard tin prompts	415½	198	210½	148	232	176⅛	207½
Standard copper, prompts	122	70½	75½	65¼	76¼	59¼	59¾
Lead	52⅜	21½	26	16½	31½	23¾	31½
Zinc (spelter)	63	22½	28¼	23½	39⅛	27⅝	32⅜

* Outside market.

COMPARISON OF SECURITY PRICES

Iron and Industrial Stocks.	Range. 1920. High.	Low.	Range. 1921. High.	Low.	Range. 1922. High.	Low.	Range. 1923. High.	Low.	Closing Oct. 31, 1923.
Allis-Chalmers.....	53⅞	26½	39¾	28¼	59¾	37¾	51¼	37¾	40
American Can	61¾	21¾	35½	23½	76½	32⅛	106	73½	96⅝
American Car & Fdy...	147⅜	111	151	115¼	201	141	189	148¼	159¾
American Loco. (new)	....	....	....	....	....	....	75¼	64¾	71
American Smelt. & Rfg.	72	29¼	47¼	29⅝	67½	43⅝	69½	51¼	54½
Am. Steel Found., new.	50	26	35	18	46⅛	30¾	40⅞	31⅜	34½
Anaconda Copper	66½	30	50¾	31¾	57	45	53½	32⅜	34⅝
Baldwin Loco	148½	78	100⅜	62¼	142¾	92¾	144¼	110½	121⅞
Bethlehem Steel.....	....	....	....	....	79	51	70	41¾	49⅛
Butte & Superior	29¼	8	22⅛	10	35¼	20⅜	37⅜	12⅞	14
Cerro de Pasco	61⅜	24¼	36½	23	46⅜	32⅞	50½	36½	38⅞
Chile Copper	21¼	7¾	16⅞	9	29¼	15⅛	30⅝	24⅛	26⅛
Chino Copper	41⅝	16⅜	29½	19½	33⅜	22¼	31⅞	14¾	15½
Colo. Fuel & Iron	44¼	22	32¾	22	37⅜	24	35⅜	20	22⅜
Crucible Steel	278½	70	107½	49	98⅜	52¾	84½	57½	61½
General Electric	172	116½	143¾	109½	190	136	190	167⅝	172⅞
General Motors	42	10¾	16¼	9⅜	15¼	8⅛	17½	12¾	13⅞
Granby Con.	55½	15	34½	15	35	22	33	12	13¼
Great Northern Ore ...	41⅝	24⅞	35⅜	25⅝	45⅝	28⅞	36	25	29½
Gulf States Steel	84⅞	25	50⅞	25	94⅞	44⅞	104⅝	65¼	76¾
Inspiration Copper	61⅞	28	42¼	29⅝	45	31	43¾	23¼	24½
International Harvester	142½	88	100½	67⅝	115⅞	79⅜	98½	66¾	73⅝
International Nickel...	26¾	11⅛	17	11½	19¾	11¼	16¼	10⅜	10¾
Kennecott Copper	33½	14⅝	27⅞	16	39⅝	25½	45	29⅜	31
Midvale Steel	52¾	29½	33½	22	45½	26	33⅜	21½	26⅛
National Enam. & Stg..	89½	43¾	66	26	68½	30¾	73	33⅝	40⅝
National Lead	93¼	63½	87	67¾	129¼	85	136¾	108	120½
N. Y. Air Brake.....	....	....	....	....	41⅝	24½	41	26⅝	35½
Pressed Steel Car	113⅞	72½	96	48	95¼	63	81½	42½	52
Railway Steel Spring ..	106½	73	99½	67	126¼	94	123	99½	101⅞
Ray Consolidated	22¾	10	15⅞	11	19	12⅛	17¼	9⅞	11⅝
Republic Iron & Steel.	124¾	55¼	73½	41	78½	43½	66¼	40⅛	45¼
Sloss-Sheffield	82¼	43	56	32⅛	54½	34½	60	39¼	43
U. S. Cast Iron Pipe ...	25½	10½	19	11½	39	16⅛	40¾	20	38⅝
U. S. Smelt., Rfg. & M.	76	29½	39⅜	26	45¾	32¾	43⅜	18⅜	19
U. S. Steel Corporation	109	76¼	86½	70	111½	82	109⅝	85½	91½
U. S. Steel Corp. pfd....	115¾	104⅛	115	105	123	114¼	123½	116⅛	118½
Utah Copper	80¾	44⅛	63⅜	41⅛	71½	59	76½	55½	59
Westinghouse Electric.	55⅛	40	52¼	38⅞	65⅞	49⅛	67⅛	52½	57½

BUSINESS TRENDS

THE OUTLOOK.

Discussing the current business situation, the Mechanics & Metals National Bank of New York, in its monthly letter issued October 30th, says:

"Business throughout the United States is active, and prospects for the remaining weeks of 1923 are for an excellent rate of production and a wide distribution of goods. Measured by all the normal standards, the country is in a prosperous condition. Labor is well employed at high wages; the physical volume of output is large; freight car loadings are at their peak of the year; commodity prices on the whole are stable and relatively high; the banking and credit structure is thoroughly sound.

"True, business is not up to that of last Spring, when activity was at flood tide and when production reached a higher point than was ever before attained in this country. But it is far from being poor, and to say that it is poor, as some people are saying, simply because it is not so good as it was at the height of the year's boom, is altogether misleading. Output of manufactured goods is from 5 to 15% below the 1923 peak, but at the same time it is from 10 to 40% above the Autumn of 1922, and then the country was considered to be experiencing real prosperity.

"Measured by figures, there is nothing wrong with the volume of trade in the United States. Yet one cannot fail to sense a spirit of caution that holds optimism in check, nor can one overlook the significance of a hesitant forward buying of goods and a depressed stock market. Every reasonable assurance that good business is in store for the months immediately ahead, on a scale well above that of 1921 and 1922, has failed to stir the business or financial imagination, consequently a common criticism on the part of those who insist upon being cheerful is that something is wrong with the country's psychology. Perhaps that is so. Perhaps, on the other hand, it is not alone psychology, but the uncertainties of politics, agriculture, labor, prices and foreign affairs, which in the popular mind offset business assurances and account for the check that is placed on optimism at the present time.

"The new Congress will contain an increased number of professed radicals, and despite the doubt that is cast upon their strength, it is only natural that fear should be aroused by the threats of attack upon the transportation act, by prospective demands upon the Treasury for $100,000,000 to $500,000,000 for farm relief, by revival of the soldier bonus, by proposals to restore burdensome tax levies upon capital, and by the possibility of a heavy increase in appropriations for non-productive purposes. Having since last Spring been wholly free from legislative influence, business and finance have again come under the spell of what is said and done in Washington, and will respond for three months at least to what goes on in Congress, and thereafter to what the presidential campaign brings forth."

NEW ENTERPRISES INCREASE.

During October 701 new companies were organized under the laws of the different States with an authorized capital of $100,000 or over, representing a combined total of $704,000,000. In the corresponding period a year ago 756 new concerns were incorporated involving the sum of $651,588,390. During September of this year 535 companies took out charters amounting to $500,830,000. These figures indicate that a more hopeful feeling prevails in banking and industrial circles regarding the business outlook, particularly in view of the fact that the returns are well diversified.

Since January 1st, 7,435 new enterprises have been formed with a combined capitalization of $6,603,257,120. During the first ten months of 1922 7,924 charters were filed with an aggregate capitalization of $6,777,532,790. In the similar period of 1921 8,024 corporations were organized with a total capitalization of $6,762,522,000.

The following are the comparative figures as compiled by **The Journal of Commerce** of companies incorporated in the States with authorized capital of $100,000 or over.

	1923	1922
January	$909,693,800	$ 843,652,900
February ...	700,708,300	591,404,300
March	500,819,000	731,866,000
April	1,006,258,300	792,372,000
May	817,229,500	938,195,000
June	1,403,336,220	297,557,000
July	724,920,000	634,259,200
August	335,462,000	646,605,000
September ..	500,830,000	650,044,000
October	704,000,000	651,577,390
November ..	.....	808,719,600
December ...	.....	813,901,000
Total	.....	8,400,153,390

BUSINESS TRENDS

OCTOBER FAILURES AND LIABILITIES.

Failures for the month of October, as reported to Bradstreet's, totaled 1,594, with liabilities of $74,429,774 and assets of $50,198,455. There is here shown an increase of 24.5% over the shorter month of September, but the increase over August was only 10.7%, while there was a decrease as compared with October a year ago of 1%. Compared with October two years ago the decrease in number is 14%. Liabilities for October were over double those of September, being swelled by one large suspension of a previously crippled phonograph concern. Liabilities were 86% larger than in October a year ago and 54% in excess of October, 1921.

There were fewer failures in October than in October a year ago in the middle Atlantic, central western and southern states, with slightly more in New England, the far western and the northwestern groups. Liabilities were heavier than in October a year ago in all groups but the central west. Failures in New York City were 20% fewer than in October last year, but liabilities were 29% larger.

Following are the failures, assets and liabilities monthly since January, 1923:

1923	Number	Assets	Liabilities
Jan.	2,203	$28,244,270	$53,597,775
Feb.	1,563	18,845,274	38,145,532
Mar.	1,677	32,035,272	60,617,408
April ...	1,637	31,290,039	52,056,267
May	1,470	15,385,783	30,905,711
June	1,366	35,086,046	51,714,436
July	1,405	20,362,083	40,220,398
Aug.	1,440	27,823,651	48,748,849
Sept. ...	1,280	14,574,061	27,497,408
Oct.	1,594	50,198,455	74,429,774

THE PURCHASING POWER OF ONE DOLLAR.

The Bureau of Labor Statistics of the United States Department of Labor has just published in the last issue of the monthly Labor Review a table showing the variations in the value of the dollar from month to month and from year to year, beginning with January, 1913.

According to this table, which is based on the average buying power of money in 1913, the dollar reached its lowest mark in May, 1920, when it was worth just 40 cents In January, 1922, it had risen to 72 cents, the highest point since October, 1916, but it has fallen quite steadily since that time, so that in June, 1923, tht last month included in the table, it was worth only 65 cents.

The buying power of the dollar is determined by the wholesale prices of a great many standard, representative commodities which are grouped under nine general headings. The variation in the value of the dollar from year to year, in terms of these commodity groups, is shown in the accompanying table:

Average Purchasing Power of the Dollar, 1913 to 1923.

	Farm prods	Foods	Cloths and clothg	Fuel and lightg	Metals and metal prods
1913..	$1.00	$1.00	$1.00	$1.00	$1.00
1914..	.97	.98	1.02	1.08	1.17
1915..	.96	.96	1.02	1.14	1.02
1916..	.82	.83	.80	.80	.62
1917..	.53	.60	.57	.59	.44
1918..	.46	.53	.44	.58	.53
1919..	.43	.49	.41	.55	.62
1920..	.47	.46	.35	.42	.53
1921..	.81	.69	.56	.49	.78
1922..	.75	.72	.56	.46	.82
1923*.	.71	.70	.50	.50	.69

	Bldg. mts.	Chem. and drugs	House furng. goods	Misc.	All commodities
1913..	$1.00	$1.00	$1.00	$1.00	$1.00
1914..	1.08	1.00	1.00	1.03	1.02
1915..	1.07	.69	1.00	1.06	.99
1916..	.83	.57	.94	.84	.79
1917..	.64	.50	.80	.67	.57
1918..	.58	.47	.66	.64	.52
1919..	.51	.59	.55	.57	.49
1920..	.38	.50	.39	.52	.44
1921..	.60	.76	.51	.78	.68
1922..	.59	.81	.57	.86	.67
1923*.	.51	.75	.54	.80	.64

* First six months.

CAR LOADINGS.

Car loadings for the week ending October 20th totaled 1,072,881 cars, the fifth largest total ever recorded, shows a decrease of 11,577 from the previous week, but an increase of 82,992 cars over a year ago, 110,589 over 1921 and 64,763 over 1920.

Week ended	1923	1922	1921
Oct. 20	1.072,881	989,889	962,292
Oct. 13	1.084,458	969,487	910,529
Oct. 6	1.079,690	953,252	899,081
Sept. 29	1.097,274	988,381	904,831
Sept. 22	1.060,436	961,138	873,641
Sept. 15	1.060,580	937,221	852,552
Sept. 8	928,858	823,247	749,552
Sept. 1	1.092,567	923,806	831,288
Aug. 25	1.069,932	879,902	828,883
Aug. 18	1.035,741	846,266	815,147
Aug. 11	973,162	842,690	808,269
Aug. 4	1.033,130	842,663	786,178
July 28	1.041,044	748,859	795,432
July 21	1.028,927	845,748	788,034
July 14	1.019,667	870,676	774,884
July 7	854,748	767,025	640,535

Car loadings for forty-two weeks of 1923 total 39,846,920, against 34,227,167 last year, 31,921,765 in 1921 and 36,827,167 in 1920.

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those who had hoped greatly to extend membership in unions. The result will be received with considerable satisfaction by the advocates of the shorter day.

It is a fact long recognized that where working conditions are satisfactory many workers have little use for unions and the propaganda of militancy constantly carried on by their leaders, and the present aloofness of steel works employes furnishes new evidence of that fact. It should be noted that union officials have not yet given up hope, and will attempt to "bore from within" by getting men who are not now engaged in steel plants to obtain employment there, but the movement is not likely to gain much headway as long as steel workers are satisfied with their wages and working conditions."

Industry's Interest in Engineering Education—In spite of the occasional but widely heralded antagonistic attitude of a few American business men toward college graduates, evidencing is accumulating that, at least as far as engineering graduates are concerned, industry in this country is beginning to realize the value of college training. Apparently industry as a whole, but particularly that built on a technical or mechanical foundation, is beginning to wake up to a situation that has been appreciated for some years past by the two largest electrical manufacturers in this country.

If, as a recent report of the National Industrial Conference says, "future of the country depends upon an adequate supply of men trained in applied science and engineering who are foreward-looking men," it behooves us to look well to engineering education, and particularly to the selection of those men who enter engineering schools. In this connection the preparatory schools can render a great service by selecting the potential engineers in their student bodies and guiding them toward the study of engineering subjects. And if high quality is to be maintained, it will devolve upon the engineering schools to set up such standards of admission as will exclude the unfit. Such selection combined with a broad and thorough training in the fundamentals of science, mathematics and engineering, will go a long way toward meeting the apparent demand that exists in industry for leadership by trained engineers—**Chemical and Metallurgical Engineering.**

Make the Engineering School Part of Industry—"The purchaser of engineering equipment is almost always careful to examine what he buys," says the **Electrical World.** "He wants to know all about the product. He is zealous in specifying what it shall be, and not infrequently he insists on giving it occasional or continuous inspection as it passes through the factory. But in connection with one of the most important purchases he makes—whether he be himself a manufacturer or an operator—he is all too negligent in helping to shape the product he needs. In spite of this negligence, as an employer of technically trained men he is prone to be critical of the recent graduates he employes and also of the schools and teachers that train them. As Andrew Carnegie among others forcefully pointed out, the greatest thing of value an executive has is his organization. To build an organization of good raw material is needed, and in the electrical industry above all others good technically trained men are needed. The schools which train and produce these men are thus as much a part of the industry itself as are the manufacturers of material and equipment. They are, in fact, more important. In general they are trying to get close to industry. But the power to make the amalgamation complete lies with industry itself. It must make the engineering school a part of industry and not apart from industry."

Curtailing Production of Ford Parts—"The Ford Motor Company has notified foundries throughout the country to curtail production of Ford parts, beginning immediately," says the Iron Age.

"The order was issued, it is reported, as the first move in the company's plan to reduce its inventory. The stock of parts in the Company's plants and in the warehouses of its dealers is said to be sufficient to take care of expected requirements for the remainder of the year. It is not the intention of the company at this time to reduce its production of passenger cars and trucks, and schedules for October called for a slight increase in the output over September. Some foundries in Ohio and Indiania which had been employed on Ford work have already reduced their operations, a number of men laid off in each car shop."

IRON AND STEEL MARKET

There is not enough evidence to warrant a judgment that October marked a turning point in the steel market, but there is amply sufficient to indicate that opinions recently entertained must be modified. The steel trade has been commonly regarded, ever since last April, as in process of running down, with light operation and declining prices inevitable eventually.

Expectations formerly entertained are not being carried out.

Production of steel reached its high point in April, when ingots were made at a rate of 49,000,000 tons a year.

Month by month afterwards production decreased, but the regular course in steel has been for decreases to become more and more pronounced.

Instead, while the rate of production decreased by 16% from April to September, it decreased by only about one-half percent (.55%) from September to October.

This negligible decrease occurred in face of the fact that mills had relatively little backlog business with which to maintain operations, being dependent chiefly upon current sales, and the further fact that buyers had been so conservative for months that if they had any large stocks of steel they would be liquidating them to such an extent as to decrease greatly the shipments they were willing to receive from mills.

That the general industrial activity of the country is well maintained is recognized by various indexes, including such as employment, car loadings, bank clearings, etc. This gives no quantitative conception of the amount of steel required to support this activity. No one knew, during the first half of the year, whether consumption of steel was equal to the production. Only the production was known. In the long run the two must match but in six months or in a year they do not need to match and very often they do not. Production of steel was only 46% as great in 1921 as in 1920, but consumption did not decrease by as much.

COMPOSITE PIG IRON.

Computation for November 1, 1923.

One ton Bessemer, valley	$25.00
Two tons basic, valley (22.00)	44.00
One ton No. 2 fdy., valley	22.50
One ton No. 2X fdy., Philadelphia	22.64
One ton No. 2X fdy., Buffalo	21.75
One ton No. 2 fdy., Cleveland	24.26
One ton No. 2 fdy., Chicago	24.61
Two tons No. 2 southern foundry, Cincinnati (23.05)	46.10
Total, ten tons	230.86
One ton	**23.086**

Averaged from daily quotations.

	1923.	1922.	1921.	1920.	1919.	1918.
Jan.	27.31	19.71	32.62	39.84	32.39	34.19
Feb.	27.98	19.31	29.95	42.72	32.39	34.19
Mar.	30.36	19.26	27.35	43.05	30.47	34.14
Apr.	31.44	20.77	25.80	43.62	28.05	33.88
May	30.84	23.91	24.67	44.43	27.74	33.88
June	29.11	24.29	23.08	44.80	27.15	33.91
July	26.98	24.54	21.57	45.60	27.66	34.04
Aug.	26.10	27.74	20.29	47.41	27.99	34.04
Sept.	25.98	32.48	20.99	48.98	28.26	34.31
Oct.	24.37	31.82	21.15	47.07	28.65	35.36
Nov.	....	29.47	20.92	41.80	31.48	35.39
Dec.	....	26.73	20.42	36.31	36.73	35.23
Year	....	25.00	24.05	43.80	29.91	34.38

Annual Averages.

1917	39.99	1914	13.52
1916	20.31	1913	15.42
1915	14.15	1912	14.82

COMPOSITE STEEL.

Computation for November 1, 1923.

Pounds	Group	Av. Price	Extension
2½	Bars	2.40	6.000
1½	Plates	2.50	3.750
1½	Shapes	2.50	3.750
1½	Pipe (1-3)	3.80	5.700
1½	Wire nails	3.00	4.500
1	Sheets (28 ga.)	2.75	3.750
½	Tin plate	5.50	2.750
Total, ten pounds			30.200
One pound			**3.02**

Averaged from daily quotations.

	1923.	1922.	1921.	1920.	1919.	1918.
Jan.	2.59	2.16	3.25	3.35	3.58	3.80
Feb.	2.72	2.14	3.10	3.58	3.58	3.80
Mar.	2.83	2.09	2.94	3.78	3.47	3.80
Apr.	2.99	2.16	2.93	3.77	3.25	3.80
May	3.03	2 18	2.93	3.71	3.25	3.80
June	3.03	2.22	2.83	3.67	3.25	3.80
July	3.03	2.23	2.63	3.70	3.25	3.80
Aug.	3.03	2.36	2.48	3.80	3.25	3.80
Sept.	3.03	2.51	2.37	3.80	3.22	3.80
Oct.	3.02	2.57	2.31	3.67	3.23	3.80
Nov.	....	2.57	2.28	3.50	3.25	3.80
Dec.	....	2.57	2.23	3.28	3.25	3.67
Av.	....	2.31	2.69	3.63	3.32	3.79

Annual Averages.

1917	4.46	1915	1.63	1913	1.72
1916	2.80	1914	1.52	1912	1.62

The evidence of steel production and shipments in October is that unless buyers were piling up steel, which seems rather improbable, the industrial activity involves a very heavy steel consumption, heavier than most observers imagined possible, for this simple comparison can be made, that while the rate of steel production in October was one-sixth less than the unexpectedly high peak rate reached last April, it was more than one-third greater than the rate in 1912 and 1913, notably the two biggest tonnage years before the war, and more than one-fourth greater than the average rate of production in the four postwar years 1919 to 1922 inclusive. When one recalls the predictions made during the war that for several years afterwards the pent-up demand for steel would express itself the showing now made is particularly remarkable.

Although October showed practically sustained production, no one expects steel production to show further decline. At any rate it will presumably decrease in December, as it does more often than not.

PIG IRON PRICES.

(Averaged from daily quotations; at Philadelphia, Buffalo, Cleveland and Chicago, prices are delivered.)

	Bessemer, Valley	Basic Valley	No. 2 fdy. Valley	Basic. Phila.	No. 2X Phila.	No. 2X foundry Buffalo.	No. 2 fdy. Cleveland.	No. 2 fdy. Chicago.	No. 2 fdy. Birmingham.	Ferro-manganese.*	Comp. Pig Iron.
Feb. 1921	29.63	27.71	28.29	29.28	30.73	30.17	30.15	30.87	27.50	90.00	29.95
Mar. ...	26.70	24.41	25.89	26.54	28.03	29.01	27.70	27.07	25.52	90.00	27.35
April ..	25.00	23.00	24.81	25.47	26.38	27.17	26.77	25.32	23.77	90.00	25.80
May ...	24.32	22.15	23.60	23.70	24.96	25.40	25.56	23.70	21.80	85.00	24.47
June ...	22.88	21.20	22.42	23.54	24.21	22.45	24.17	22.08	20.48	75.00	23.08
July	21.34	19.52	20.40	22.40	23.00	20.68	21.66	19.98	20.18	70.00	21.57
Aug. ...	20.00	18.22	19.59	19.70	20.42	19.48	20.56	19.64	18.70	68.50	20.29
Sept. ..	20.00	19.00	20.86	19.14	20.84	20.08	20.56	22.18	19.06	66.00	20.99
Oct. ...	20.00	19.24	21.00	20.50	21.40	20.50	20.56	22.35	19.00	60.00	21.15
Nov. ...	20.00	19.00	20.78	20.50	21.93	19.82	20.56	21.79	18.56	60.00	20.92
Dec. ...	20.00	19.00	20.00	20.45	21.88	19.38	20.56	20.53	17.31	59.00	20.42
Jan. 1922	19.62	18.19	19.38	20.25	21.34	19.75	19.92	19.84	15.96	58.00	19.71
Feb. ...	19.40	18.00	18.92	19.84	21.34	19.06	19.56	19.18	15.33	65.75	19.31
Mar. ...	19.02	17.89	18.87	19.84	20.73	18.56	19.56	20.48	15.31	62.50†	19.26
April ..	20.88	19.98	20.74	20.75	22.90	20.89	20.76	21.06	15.74	68.00†	20.77
May ...	25.08	24.62	24.00	23.37	25.51	23.44	24.56	23.05	17.63	70.00†	23.91
June ..	25.00	25.00	24.00	25.00	26.62	22.96	24.56	23.83	18.44	68.50†	24.29
July ...	25.00	24.32	24.20	25.54	28.00	25.05	24.56	24.73	18.56	69.00†	24.54
Aug. ...	27.74	26.17	29.04	29.00	31.69	30.42	29.16	28.17	20.37	70.00†	27.74
Sept. ..	33.76	30.08	35.02	30.90	34.76	34.13	35.50	32.53	25.40	77.00†	32.48
Oct. ...	33.23	30.23	31.63	29.50	32.69	31.60	34.27	32.15	27.04	100.00†	31.82
Nov. ...	31.70	28.28	28.78	28.14	30.78	28.41	31.34	30.65	24.12	100.00‡	29.46
Dec. ...	27.78	24.96	25.92	27.50	28.53	26.19	27.38	28.09	22.70	100.00‡	26.73
Jan. 1923	27.50	25.00	27.00	27.90	28.72	27.44	27.83	29.09	23.23	103.00‡	27.31
Feb. ...	27.75	25.67	27.21	28.25	29.79	28.52	28.42	30.13	24.29	106.00‡	27.98
Mar. ...	29.94	29.44	30.00	29.17	31.86	29.40	31.31	31.46	26.33	117.00‡	30.26
April ..	31.00	31.00	31.00	30.50	33.01	30.17	32.50	32.61	27.00	116.50‡	31.44
May ...	30.23	29.33	30.69	30.85	32.64	29.29	32.13	32.61	27.00	123.00‡	30.84
June ..	28.73	26.85	28.04	28.20	30.47	28.87	29.85	32.11	25.63	125.00‡	29.11
July ...	26.82	25.11	25.70	26.45	27.80	25.11	27.32	28.71	25.00	120.00‡	26.98
Aug. ...	26.50	25.00	25.00	25.00	25.50	24.75	26.77	27.65	23.31	117.50‡	26.10
Sept. ..	26.50	24.92	24.96	24.50	26.03	24.65	26.71	27.36	22.81	112.00‡	25.98
Oct. ...	25.33	24.00	23.76	24.00	24.33	22.87	25.31	25.76	20.11	109.00	24.37
Yearly averages.											
1913 ...	16.26	14.77	14.87	16.23	16.56	14.87	15.37	16.39	11.73	57.87	15.42
1914 ...	13.99	12.89	13.02	14.02	14.59	12.84	13.76	14.15	10.25	55.80	13.52
1915 ...	14.90	13.78	13.81	14.88	15.25	13.98	14.31	14.46	10.59	92.21	14.15
1916 ...	23.05	19.87	20.16	20.96	21.20	20.63	20.40	20.67	15.84	164.12	20.31
1917 ...	42.67	39.10	39.89	39.37	40.80	40.41	40.61	41.06	35.11	309.17	39.99
1918 ...	35.46	32.50	33.27	34.10	35.56	33.97	33.62	33.77	33.20	245.83	34.38
1919 ...	29.62	27.49	28.63	30.02	32.75	30.53	29.14	29.37	28.34	132.16	29.91
1920 ...	42.85	42.05	43.25	43.26	46.74	45.23	43.66	43.25	40.43	172.33	43.80
1921 ...	23.49	21.87	23.30	23.56	24.74	23.78	24.34	24.05	21.92	76.54	24.05
1922 ...	25.68	23.98	25.04	24.88	27.07	25.04	25.93	25.31	19.72	75.33	25.00

* Delivered. † Seaboard. ‡ F. o. b. furnace.

PIG IRON

As noted in last month's report, it could be said that a fresh declining movement in pig iron began in September, as after the heavy declines in May, June and July the market had been rather steady in August. The decline continued in October and at a more rapid rate. Our **composite pig iron** went down 93 cents in September, but declined $2.08, or more than twice as much, in October.

These additional declines have produced no feeling in the minds of pig iron consumers that the bottom has been reached. Whatever may be the actual outcome, the present opinion of buyers is that further declines easily represent the balance of probability.

Buyers are impressed by the fact that while production may possibly be balanced by consumption, although they doubt whether it is, there are stocks at both active and idle furnaces and it costs money to hold this iron, while in addition there may be lower production costs next year by way of cheaper coke and iron ore. That is, pig iron consumers cannot be impressed by statements that present market prices are below cost of production.

Production of merchant pig iron was 23% lower in October than at its top rate a few months earlier, and to many foundrymen that does not seem like much of a decline, when set beside their own record of heavy orders some months ago and a lean order book at the present time.

PIG IRON PRODUCTION

Production of coke and anthracite pig iron in October, a month of 31 days, amounted to 3,149,158 gross tons, which was at a daily rate of 101,586 tons, being a decrease of 2½% from the output in September. In September, a month of thirty days, production of anthracite and coke iron was 3,125,512 tons, or at a daily rate of 104,184 tons.

The October production was at an annual rate of 37,078,890 tons against a September annual rate of 38,028,000 tons. On November 1st, 245 furnaces were ac-

UNFINISHED STEEL AND IRON BARS.

Averaged from daily quotations.

1921—	Billets. Pitts.	Sheet Bars. Pitts.	Rods. Pitts.	—Iron bars, deliv.— Phila.	Pitts.	Ch'go.
Jan.	45.00	47.00	57.00	2.85	3.06	2.68
Feb.	42.00	42.00	57.00	2.70	2.70	2.62
Mar.	39.00	39.00	47.00	2.56	2.60	2.60
April	37.00	38.50	47.50	2.35	2.45	2.45
May	37.00	39.00	48.00	2.35	2.35	2.38
June	35.00	36.00	48.00	2.20	2.25	2.25
July	32.00	33.00	43.00	2.07	2.20	1.94
Aug.	30.25	30.50	42.00	2.00	2.08	1.75
Sept.	30.00	30.00	40.50	1.97	2.00	1.75
Oct.	30.00	30.00	40.00	1.92	2.00	1.75
Nov.	29.00	30.00	40.00	1.90	1.97	1.70
Dec.	29.00	29.00	38.00	1.85	1.95	1.70
1922—						
Jan.	29.00	29.00	37.00	1.80	1.82	1.60
Feb.	28.50	29.00	36.00	1.75	1.78	1.60
Mar.	28.00	29.00	36.00	1.70	1.70	1.54
April	30.00	31.75	38.00	1.81	1.75	1.57
May	34.00	35.00	38.00	1.86	1.83	1.65
June	35.00	35.00	38.00	1.96	1.95	1.73
July	35.00	35.00	40.00	2.12	2.13	1.85
Aug.	37.00	37.00	43.00	2.16	2.15	1.95
Sept.	39.00	40.00	45.00	2.48	2.25	2.25
Oct.	39.50	39.50	45.00	2.43	2.40	2.50
Nov.	37.75	37.75	45.00	2.37	2.40	2.50
Dec.	36.50	36.50	45.00	2.32	2.35	2.50
1923—						
Jan.	37.50	37.50	48.50	2.36	2.37	2.45
Feb.	39.40	39.40	50.00	2.51	2.54	2.35
Mar.	44.00	44.00	50.00	2.70	2.70	2.50
April	46.30	45.60	50.00	2.82	2.80	2.60
May	45.00	45.00	50.00	2.82	2.80	2.60
June	43.50	43.50	51.00	2.80	2.75	2.60
July	42.50	42.50	51.00	2.69	2.70	2.60
Aug	42.50	42.50	51.00	2.72	2.70	2.60
Sept.	42.50	42.50	51.00	2.70	2.70	2.40
Oct.	42.50	42.50	51.00	2.67	2.70	2.34
Yearly averages						
1913.	25.56	26.35	28.39	1.51	1.59	1.45
1914.	20.08	20.84	25.50	1.20	1.27	1.07
1915.	23.14	23.46	28.28	1.37	1.32	1.24
1916.	45.02	45.10	57.58	2.57	2.59	2.31
1917.	71.15	75.87	80.23	4.06	4.09	3.78
1918.	47.30	50.80	57.00	3.71	3.50	3.50
1919.	40.52	43,77	53.11	2.94	2.80	2.69
1920.	57.79	65.21	70.00	4.35	4.13	3.65
1921.	34.60	35.33	45.67	2.23	2.30	2.13
1922.	34.10	34.54	40.50	2.06	2.04	1.94

WAGE SCALE AVERAGES

	Bar Iron.	Sheets.	Tin Plate
Jan.-Feb. ..	2.25	3.30	4.80
Mar.-April .	2.35	3.40	4.80
May-June ...	2.50	3.60	5.20
July-Aug. ..	2.50	3.70	....*
Sept.-Oct. ..	2.40	....	....

* Returns discontinued.

tive out of a total of 418, having an estimated capacity of 99,030 tons a day, equivalent to an annual rate of 36,145,950 tons. On October 1st, 255 furnaces were active having an estimated daily capacity of 102,100 tons, equivalent to an annual rate of 37,266,500 tons.

Steel companies in October produced at a daily rate of 77,255 tons against 78,799 tons in September and merchant furnaces at a daily rate of 24,331 tons in October against a daily rate of 25,385 tons in September. The steel companies therefore produced at the lowest daily rate since November, 1922, and the merchant furnaces at the lowest rate since January of this year. All furnaces together produced at the lowest rate since December, 1922.

The September output of all furnaces was at the rate of 104,184 tons a day and the total production was 3,125,512 tons, including 2,363,967 tons by the steel companies and 761,545 tons by merchant companies. In October total production was 3,149,158 tons, of which the steel companies produced 2,394,922 tons and merchant furnaces 754,236 tons.

It is notable that production of ferromanganese continues heavy although smaller than in any month since June, the total in October being 20,015 tons. Spiegeleisen production, however, continues relatively heavier than ferromanganese, the October production having been 15,931 tons, being with the exception of June, the most active month of the year. Since January that is, during the first eight months, there has been a total production of 213,323 tons of ferromanganese and 103,678 tons of spiegel, whereas during the whole of 1922 there was produced only 151,175 tons of ferromanganese and 68,587 tons of spiegeleisen. These figures are based upon furnace returns to the Iron Age. Including charcoal iron on November 1st total production of all kinds of pig iron was at the rate of scarcely more than 36,350,000 tons.

In the first ten months of this year output of coke and anthracite iron amounted to 34,244,031 tons, pointing to total production for the year of something over 40,000,000 tons which is record breaking. The largest production in any one year previously was 39,434,797 tons in 1916.

STEEL MAKING PIG IRON AVERAGES

Bessemer and basic pig iron averages compiled by Messrs. W. P. Snyder & Company from sales in the valley market of 1,000 tons and over.

	Bessemer.			Basic.		
	1923.	1922.	1921.	1923.	1922.	1921.
Jan.	27.50	19.50	32.00	25.58	18.19	30.00
Feb.	28.02	19.50	27.00	26.38	17.75	25.00
Mar.	30.26	19.39	26.20	30.02	18.00	24.50
April	31.00	20.54	25.00	31.00	19.30	22.50
May	30.10	24.40	24.25	28.06	24.91	21.87
June	28.50	25.00	23.00	26.57	25.00	20.70
July	26.70	25.00	20.88	24.75	24.56	18.80
Aug.	26.50	28.67	20.00	25.00	25.41	18.33
Sept.	26.50	33.50	20.00	24.50	32.93	19.25
Oct.	25.20	33.50	20.00	23.25	30.00	19.00
Nov.	.....	31.75	20.00	.....	27.60	19.00
Dec.	.....	28.10	20.00	.....	24.57	18.69
Year	.....	25.75	23.19	.....	24.02	21.47

All prices are f.o.b. valley furnace; freight, August 26, 1920, $1.96; August 1, 1922, $1.77.

STEEL CORPORATION BOOKINGS

Changes in unfilled tonnage with shipments and bookings estimated in percentage of capacity.

	Shipments.	Bookings.	Difference.	Difference.
1922.				
Jan.	47	45	— 2	— 26,736
Feb.	57	49	— 8	— 100,609
Mar.	65	90	+25	+ 353,079
April ...	70	115	+45	+ 602,769
May	75	86	+11	+ 157,311
June	75	103	+28	+ 381,303
July	75	86	+11	+ 140,630
Aug.	67	79	+12	+ 173,944
Sept. ...	67	121	+54	+ 741,502
Oct.	76	91	+15	+ 210,680
Nov.	81	76	— 5	— 62,045
Dec.	80	73	— 7	— 94,539
Jan., 1923	86	97	+11	+ 165,073
Feb.	88	117	+29	+ 373,213
Mar.	89	97	+ 8	+ 119,343
April ...	93	84	— 9	— 114,823
May	93	72	—21	— 307,158
June	92	49	—43	— 595,090
July	89	53	—36	— 475,498
Aug.	87	52	—35	— 496,100
Sept. ...	87	58	—29	— 378,913

Unfilled Orders.

At end of the quarter, last three figures omitted.

	First.	Second.	Third.	Fourth.
1911	3,447	3,361	3,611	5,084
1912	5,304	5,807	6,551	7,932
1913	7,468	5,807	5,003	4,282
1914	4,653	4,032	3,787	3,836
1915	4,255	4,678	5,317	7,806
1916	9,331	9,640	9,522	11,547
1917	11,711	11,383	9,833	9,381
1918	9,056	8,918	8,297	7,379
1919	5,430	4,892	6,284	8,265
1920	9,892	10,978	10,374	8,148
1921	6,284	5,117	4,560	4,268
1922	4,494	5,635	6,691	6,746
1923	7,403	6,386	....	....

The following table shows the estimated annual rates of production of pig iron in each month during the last three years.

Estimated annual rates.

	1923	1922	1921
Jan. ...	38,275,000	19,300,000	28,750,000
Feb. ..	39,250,000	21,300,000	25,550,000
Mar. ..	41,300,000	24,000,000	19,000,000
April .	43,400,000	25,250,000	14,600,000
May ...	45,800,000	27,250,000	14,450,000
June ..	44,850,000	28,900,000	13,000,000
July ...	43,550,000	28,500,000	10,200,000
Aug. ..	40,615,000	21,550,000	11,250,000
Sept. ..	38,028,000	24,950,000	13,000,000
Oct. ...	37,079,000	31,350,000	14,600,000
Nov. ...	.....	34,900,000	17,200,000
Dec. ...	.....	36,350,000	19,400,000

Yearly Totals

1922....	27,219,904		
1921....	16,688,126	1916....	39,434,797
1920....	36,925,987	1915....	29,916,213
1919....	31,015,364	1914....	23,332,244
1918....	39,054,644	1913....	30,966,152
1917....	38,621,216	1912....	29,726,937

STEEL PRODUCTION

October production of steel ingots by all companies, according to estimate made by the American Iron and Steel Institute, amounted to 3,547,966 tons, equivalent to a daily rate of 131,406 tons, indicating that the industry as a whole operated at an average rate of slightly under 77.3% of total capacity. The annual rate was 40,735,860 tons.

The September figures of the Institute were revised, making total production by all companies 3,316,166 tons and the daily rate 132,647 tons. The companies which report to the American Iron and Steel Institute are credited with 3,382,986 tons in October, against a revised estimate of 3,161,964 tons in September. The October tonnage of companies reporting to the Institute included 2,724,371 tons of open-hearth, 649,452 tons of Bessemer

IMPORTANT STEEL PRICE CHANGES

At the end of 1920 prices of independent steel producers had declined to Industrial Board schedule of Mar. 21, 1919, to which U. S. Steel Corporation had meanwhile adhered. These prices are given under date of Jan. 1, 1921, subsequent changes being in open market. Only the more important changes are listed.

BARS.

Jan. 1, 1921	2.35	Mar. 29	1.50
Feb. 11	2.00	May 17	1.60
April 13	2.10	July 26	1.70
June 24	2.00	Aug. 9	1.80
July 5	1.90	Aug. 25	1.90
July 26	1.75	Sept. 27	2.00
Sept. 9, 1921	1.65	Jan. 31, 1923	2.10
Sept. 27	1.60	Feb. 16.	2.20
Nov. 9	1.55	Feb. 23, ...	2.25
Dec. 19	1.50	April 2, ...	2.35
Feb. 18, 1922	1.40	April 27	2.40

PLATES

Jan. 1, 1921	2.65	Nov. 9	1.50
Feb. 10	2.40	Feb. 18, 1922	1.40
Feb. 17	2.25	April 5	1.50
Feb. 23	2.10	May 25	1.60
April 13	2.20	July 26	1.70
June 10	2.00	Aug. 9	1.80
July 15	1.90	Aug. 25	2.00
July 26	1.85	Jan. 19, 1923	2.10
Aug. 25, 1921	1.80	Feb. 9	2.20
Sept. 2	1.75	Feb. 23	2.25
Sept. 9	1.65	Mar. 21	2.35
Sept. 27	1.60	April 2, ...	2.45
Oct. 27	1.55	April 27	2.50

SHAPES

Jan. 1, 1921	2.45	Dec. 21	1.50
Feb. 11	2.25	Feb. 18, 1922	1.40
Feb. 17	2.20	Mar. 9	1.50
Feb. 28	2.10	May 25	1.60
April 13	2.20	July 26	1.70
June 24	2.00	Aug. 9	1.80
July 22	1.90	Aug. 25	2.00
July 26	1.85	Jan. 19, 1923	2.10
Aug. 25, 1921	1.80	Feb. 16	2.20
Sept. 2	1.75	Feb. 23	2.25
Sept. 9	1.70	Mar. 21	2.35
Sept. 26	1.65	April 2	2.45
Sept. 27	1.60	April 27	2.50

STEEL PIPE

Jan. 1, 1921	57½%	Sept. 16	68½%
Mar. 24	58½%	Dec. 16	71%
April 7	59½%	Aug. 23, 1922	68%
April 13	62½%	Oct. 19, 1923	66%
July 9, 1921	64½%	Feb. 3, 1923	64%
		April 19	62%

WIRE NAILS

Jan. 1, 1921	3.25	Dec. 9, ...	2.75
Feb. 17	3.10	Dec. 21	2.50
Mar. 4	3.00	Feb. 21, 1922	2.40
April 13	3.25	Aug. 30	2.60
June 1	3.00	Sept. 27	2.70
July 9, 1921	2.75	Feb. 1, 1923	2.80
Sept. 12	2.90	Mar. 26, ...	2.90
		April 20, ...	3.00

BLACK SHEETS

Jan. 1, 1921	4.35	Sept. 22	3.00
Feb. 11	4.15	Nov. 1	2.90
Mar. 8	4.00	Nov. 25	3.00
Mar. 17	3.85	April 7, 1922	3.15
April 13	4.00	Aug. 14	3.35
July 5	3.50	Feb. 23, 1923	3.60
July 26, 1921	3.25	Mar. 27, ...	3.75
Aug. 1	3.00	April 3, ...	4.00
Aug. 25	2.75	April 26	3.85
		Oct. 16	3.75

TIN PLATE

Jan. 1, 1921	7.00	Mar. 21, 1922	4.60
April 13	6.25	April 5	4.65
June 7	6.00	April 24	4.70
June 14	5.75	May 17	4.75
Aug. 1, 1921	5.25	Feb. 26, 1923	5.00
Sept. 15	5.00	Mar. 23	5.00
Sept. 19	4.75	Mar. 27, ...	5.50

BLUE ANNEALED SHEETS

Jan. 1, 1921	3.55	Sept. 22	2.50
Feb. 11	3.35	Nov. 1	2.25
Feb. 16	3.20	April 7, 1922	2.40
Mar. 8	3.00	Aug. 14	2.50
April 13	3.10	Sept. 20	2.60
June 10	2.90	Nov. 23, ...	2.50
July 6, 1921	2.65	Feb. 23, 1923	2.75
Aug. 2	2.40	Mar. 23	3.00
Aug. 16	2.25	April 3, ...	3.25
		April 26	3.00

GALVANIZED SHEETS

Jan. 1, 1921	5.70	Aug. 25	3.75
Feb. 11	5.55	Sept. 22	4.00
Feb. 16	5.35	Nov. 1	3.90
Feb. 24	5.25	Nov. 25	4.00
Mar. 8	5.10	April 7, 1922	4.15
Mar. 17	5.00	Aug. 14, ...	4.35
June 22	4.75	Feb. 23, 1923	4.75
July 5, 1921	4.50	Mar. 20	5.00
July 22	4.25	April 3, ...	5.25
Aug. 2	4.00	April 26	5.00

and 9,163 tons of other kinds. In September the revised output of open-hearth was 2,539,653 tons whereas Bessemer remained unchanged at 613,709 tons and all other kinds 8,602 tons.

The revision made in the September figures only slightly changes the percentage of capacity employed, the industry as a whole utilizing a little over 78% in September, the independents 71½% and the Steel Corporation 87%. In October the industry as a whole, as above noted, utilized a little less than 77.3% of total capacity, the independents 68.34% and the Steel Corporation 89.6%. It is thus evident that the decrease in output last month was entirely due to falling off in production by independent companies as the Steel Corporation made a gain of a little over 2½%.

The Steel Corporation in October employed an average of 89.65% of capacity, upon which basis it produced 1,766,988 tons of ingots and 1,287,878 tons of rolled products. Shipments are estimated 1,282,000 tons. The daily rate of ingot output by the Corporation last month was approximately 65,444 tons, being the largest production since June.

Independent steel companies, on the other hand, reduced plant operations very sharply, employing on an average 68 34% of capacity, being the smallest capacity utilized by these companies since September 1922. The October production of ingots by the independents, therefore, on this basis, amounted to 1,780,978 tons or at a daily rate of 65,952 tons. In September these same companies, using 71½% of capacity, produced 1,725,604 tons which was at a daily rate of 69,024 tons.

Steel companies which report to the American Iron and Steel Institute, including the Steel Corporation had a total output, as previously noted, in October of 3,382,986 tons, which was at a daily rate of 125,296 tons. In September the production, as revised was 3,161,964 tons, which was at a daily rate of 126,478 tons.

The above data emphasizes the difference between the Corporation and independent companies. The latter are producing today less steel than any month in the year, but are still more than 10% above the small capacity utilized in September 1922. Corporation is producing at a greater rate than in any month since January.

In the first ten months of this year all companies produced 37,269,387 tons

Allegheny Steel
and
Allegheny Iron

SHEETS BOILER TUBES
PLATES WASHERS
STEEL CASTINGS
Hot and Cold Pressed Stampings

ALLEGHENY STEEL COMPANY
PITTSBURGH, PA.

SOLICITING AGENTS
501 Fifth Ave., New York 1436 Dime Bank Bldg., Detroit, Mich.
Steel Sales Corporation, 129 South Jefferson Street, Chicago.

of ingots of which 35,536,361 tons were produced by the companies which report to the Institute, made up of 28,217,984 tons of open hearth, 7,200,550 tons of Bessemer and 117,827 tons of all other production in the last few months, the present indication is that the total production of ingots this year will be very close to 43,800,000 tons, which, if verified, will make the total production of steel this year record-breaking, exceeding the previous maximum output of 43,619,200 tons in 1917 by about 200,000 tons.

FABRICATED STEEL

Some large contracts for fabricated structural steel that came out tentatively last Spring are still under the surface but the time when they will come before fabricators for actual bids is coming closer. The total of this amount of prospective business is very impressive in which the New York Metropolitan district at least, is estimated between between 50,000 and 75,000 tons. The most important of potential contracts include 18,000 tons for the New York Telephone Company building on West Street, 7,000 to 10,000 tons for a power house at Kearney, N. J., for the Public Service Corporation of New Jersey and approximately 10,000 tons for the Western Electric Company power house at the same point. In New York City two loft buildings are being considered calling for 9,000 tons of steel. Elevated and subway construction will also require about 9,000 to 10,000 tons of steel. There are numerous other smaller contracts for school houses and apartment buildings which may be developed calling for an aggregate of 10,000 tons.

In the face of this array of future business which may come out when the prospect is more opportune than at the moment, we have a smaller volume of business placed in the last two months. In fact, ever since May there has been a tendency to decrease rather than increase the amount of fabricated steel placed. Preliminary estimates are for a total of less than 120,000 tons of fabricated steel orders placed in October even including 11,000 to 12,000 tons for marine work and about 7,000 tons for railroad structural work, the latter including 3,000 tons for the Baltimore & Ohio piers in Baltimore. Public service companies also have been prominent among buyers of steel for power plants, although their recent orders were scarcely more than 2,000 tons. Oil companies were less conspicuous as buyers of steel plate for oil tanks. Apparently storage capacity is now ample to take care of the excess oil production.

(Continued on page 579)

According to the Department of Commerce the tonnage booked each month by 177 identical fabricators with a capacity of 230,675 tons per month, is shown below, together with the per cent of shop capacity represented by these bookings. For comparative purposes, the figures are also prorated to obtain an estimated total for the United States on a capacity of 250,000 tons per month.

1922—	Actual Tonnage booked	Per cent. of capacity	Computed Total bookings
April	200,968	87	217,500
May	185,065	80	200,000
June	168,894	73	182,500
July	158,012	69	172,500
August ...	156,559	68	170,000
September.	146,827	64	160,000
October ..	133,037	58	145,000
November.	112,367	49	122,500
December..	138,737	60	150,000
1923—			
January ...	173,294	75	187,500
February ..	184,887	80	200,000
March	218,400	95	237,500
April	186,117	81	202,500
May	131,875	57	142,500
June	118,063*	51	127,500
July	116,774†	51	127,500
August ...	131,770‡	56	140,000
September.	108,000§	47	118,000
October ...	110,000x	48	120,000

x Estimated.

* Reported by 174 firms with a capacity of 230,460 tons.

† Reported by 169 firms with a capacity of 229,815 tons.

‡ Reported by 158 firms with a capacity of 224,305 tons.

§ Estimated.

Percentage of fabricated orders to total shop capacity.

	1922	1921	1920	1919	1918	1917
Jan.	40%	18%	75%	12%	53%	61½
Feb.	43½	14	95	12½	55½	59
Mar.	77	29	83½	17½	47	68
April	89	31	68	24½	64	61
May	81	28	61½	49	60	56½
June	73	37	50	65	56	47½
July	69	33½	50	74	116½	41½
Aug.	68	33	40	78½	57	38
Sept.	64	48	43	78½	60	29
Oct.	58	54	25½	77½	43	61½
Nov.	49	55	27½	69	27	77
Dec.	58	40	26	85	29	114
Av.	**64.2**	**35**	**53¾**	**53½**	**55½**	**59½**

STEEL INGOT OUTPUT

Monthly production of steel ingots, January, 1922, To December, 1922. Reported by companies which made 84.15% of the steel ingot production in 1922.

Months 1922.	Open-hearth	Bessemer	All Other	Monthly Production Companies Reporting	Calculated monthly production all Companies	No. of Working days	Approximate daily production all Companies.
January	1,260,809	331,851	822	1,593,482	1,891,857	26	72,764
February	1,395,835	348,571	616	1,745,022	2,071,772	24	86,324
March	1,918,570	451,386	795	2,370,751	2,814,667	27	104,247
April	1,997,465	445,939	1,109	2,444,513	2,902,240	25	116,090
May	2,214,774	494,893	1,474	2,711,141	3,218,794	27	119,215
June	2,143,708	487,851	2,918	2,634,477	3,127,775	26	120,299
July	2,020,572	464,047	2,485	2,487,104	2,952,806	25	118,112
August	1,807,310	404,379	2,893	2,214,582	2,629,256	27	97,380
September ..	1,911,147	460,127	2,505	2,373,799	2,818,261	26	108,395
October	2,352,207	518,010	2,198	2,872,415	3,410,265	26	131,164
November ...	2,360,903	525,945	2,449	2,889,297	3,430,309	26	131,935
December	2,241,104	536,214	2,572	2,779,890	3,300,416	25	132,017
Total	23,624,404	5,469,213	22,836	29,116,453	34,568,418	310	111,511

Monthly production of steel ingots, January, 1923 to October, 1923. Reported for 1923 by companies which made 95.35% of the steel ingot production in 1922.

Months 1923.	Open-hearth	Bessemer	All Other	Monthly Production Companies Reporting	Calculated monthly production all Companies	No. of Working days	Approximate daily production all Companies.
January	2,906,892	728,270	9,467	3,664,629	3,822,369	27	141,569
February	2,613,564	669,903	10,797	3,294,264	3,454,918	24	143,955
March	3,046,309	779,525	12,841	3,858,675	4,046,854	27	149,883
April	2,974,579	772,485	13,933	3,760,997	3,944,412	25	157,776
May	3,136,558	847,418	16,719	4,000,695	4,195,800	27	155,400
June	2,821,239	737,845	15,483	3,574,567	3,748,890	26	144,188
July	2,658,449	680,884	11,496	3,350,829	3,514,241	25	140,570
August	2,796,370*	701,059	9,326	3,506,755*	3,677,771*	27	*136,214
September	2,539,653*	613,709	8,602	3,161,964*	3,316,166*	25	*132,647
October	2,724,371	649,452	9,163	3,382,986	3,547,966	27	131,406
Ten months	28,217,984	7,200,550	117,827	35,536,361	37,269,387	260	143,344

* Revised.

FINISHED STEEL PRICES.

(Averaged from daily quotations, f. o. b. Pittsburgh.)

	Shapes.	Plates.	Bars.	Pipe	Wire.	Wire Nails.	Grooved Steel Skelp.	Sheets — Black.	Sheets — Galv.	Sheets — Blue Annld.	Tin plate.	Comp. Fin. Steel.
Jan. 1922	1.50	1.50	1.50	71	2.25	2.50	1.50	3.00	4.00	2.25	4.75	2.16
Feb.	1.46	1.46	1.46	71	2.22	2.47	1.46	3.00	4.00	2.25	4.75	2.14
Mar.	1.41	1.39	1.41	71	2.25	2.40	1.40	3.00	4.00	2.25	4.61	2.09
April	1.50	1.49	1.50	71	2.25	2.40	1.50	3.12	4.12	2.37	4.66	2.16
May	1.52	1.52	1.55	71	2.25	2.40	1.55	3.15	4.15	2.40	4.72	2.18
June	1.60	1.60	1.60	71	2.25	2.40	1.60	3.15	4.15	2.40	4.75	2.22
July	1.62	1.62	1.62	71	2.25	2.40	1.62	3.15	4.15	2.40	4.75	2.23
Aug.	1.82	1.82	1.80	70⅛	2.26	2.41	1.80	3.27	4.27	2.46	4.75	2.36
Sept.	2.00	2.00	1.92	68	2.37	2.62	2.10	3.35	4.35	2.60	4.75	2.51
Oct.	2.00	2.08	2.00	66⅞	2.45	2.70	2.05	3.35	4.35	2.70	4.75	2.57
Nov.	2.00	2.00	2.00	66	2.45	2.70	2.00	3.35	4.35	2.55	4.75	2.57
Dec.	2.00	2.00	2.00	66	2.45	2.70	2.00	3.35	4.35	2.50	4.75	2.57
Jan. 1923	2.04	2.04	2.00	66	2.49	2.70	2.00	3.35	4.35	2.50	4.75	2.59
Feb.	2.16	2.18	2.16	64¼	2.61	2.80	2.16	3.40	4.49	2.55	4.78	2.72
Mar.	2.29	2.29	2.25	64	2.70	2.82	2.30	3.63	5.00	2.95	5.09	2.83
April	2.46	2.46	2.36	63¼	2.70	2.94	2.40	3.97	5.20	3.20	5.50	2.99
May	2.50	2.50	2.40	62⅞	2.75	3.00	2.42	3.85	5.10	3.15	5.50	3.03
June	2.50	2.50	2.40	62	2.75	3.00	2.40	3.85	5.00	3.10	5.50	3.03
July ...	2.50	2.50	2.40	62	2.75	3.00	2.40	3.85	5.00	3.00	5.50	3.03
Aug.	2.50	2.50	2.40	62	2.75	3.00	2.40	3.85	5.00	3.00	5.50	3.03
Sept.	2.50	2.50	2.40	62	2.75	3.00	2.40	3.85	5.00	3.00	5.50	3.03
Oct.	2.50	2.50	2.40	62	2.75	3.00	2.40	3.80	5.00	3.00	5.50	3.02
Yearly averages:												
1915	1.30	1.29	1.31	79¼	1.48	1.66	1.27	1.93	3.85	1.49	3.19	1.63
1916	2.50	2.82	2.48	70⅞	2.45	2.53	2.34	3.06	4.85	2.99	5.34	2.80
1917	3.66	5.21	3.49	52⅛	3.48	3.56	3.95	6.29	8.21	6.15	7.85	4.46
1918	2.99	3.24	2.89	51⅛	3.25	3.50	2.89	4.98	6.24	4.23	7.73	3.79
1919	2.53	2.71	2.43	56¾	3.06	3.31	2.51	4.43	5.78	3.63	7.08	3.32
1920	2.99	3.20	2.99	55⅝	3.40	3.67	3.00	5.85	7.39	5.06	7.29	3.63
1921	1.07	1.96	1.89	63¾	2.77	2.98	1.96	3.54	4.57	2.74	5.83	2.69
1922	1.70	1.71	1.70	69½	2.31	2.51	1.72	3.19	4.19	2.43	4.73	2.31

(Continued from page 577)

High costs of production as a result of high wages and high material are undoubtedly limiting placing of structural orders. This policy is likely to be continued for some months with the possible exception of some of the large public utility structures previously alluded to. A conservative feeling naturally arises from the belief that both labor and material are at the peak and that lower prices for structural material, if not for labor, are likely to prevail next year.

According to the Department of Commerce, September orders taken by fabricating shops of all kinds throughout the country amounted to 132,500 tons equivalent to 53% of shop capacity. If October bookings prove equivalent to anything over 48% of shop capacity, it will be a surprise.

SEMIFINISHED STEEL

The leader of the semifinished steel market is sheet bars, and the mills jealously guard the $42.50 price on that item. In all cases but one the producers of sheet bars are producers of sheets or tin plates, and a decline in sheet bars would menace the markets in these finished products, prices for which were on November 1st reaffirmed by the Steel Corporation for the first quarter of the new year.

In slabs and billets the mills also speak of $42.50 being the market price, but in actual negotiation the price could probably be shaded any day on a really attractive order.

HEAVY ROLLED STEEL

Prices are firmly maintained at 2.40c. for bars and 2.50c. for plates and shapes. Departures in the east from Pittsburgh basing, not inconspicuous in August, have largely or wholly disappeared. There is a very fair volume of buying in bars, in small orders, while specifications are still coming in on old contracts. In shapes there is less buying, but fairly heavy deliveries on old orders. In plates the buying is light, but some mills have very fair backlogs in businesss with car builders. Railroads have been negotiating for lower prices on freight cars but thus far with little success and it is distinctly doubtful whether there will be much freight car buying in the next few months.

Steel mills might make concessions on plates, to encourage this business, but would require first that there be substantial reductions in certain other items of cost in car building, which they consider altogether too high.

SHEETS AND TIN PLATES

November 1st, the American Sheet & Tin Plate Company formally opened first quarter order books, at the same time reaffirming former prices, as follows: Blue annealed sheets, 3.00c; black sheets, 3.85c; galvanized sheets, 5.00c; automobile sheets, 5.35c; tin plate, $5.50. Many mills were selling black sheets in October at 3.75c, or $2.00 under the official price, and a few sold galvanized sheets at 4.90c. Such sales were only for prompt shipment. Announcement of the old prices for first quarter is not calculated to eliminate such shading, while on the other hand it does not stiffen prices for the first quarter, since the price cutters never had any thought of making concessions for late deliveries, what they wanted being orders for immediate rolling.

In the case of tin plate, some large consumers desired that prices be announced as they wished to fix can prices.

While the book opening was formally for first quarter, it is no secret that large can makers can secure price protection for the half year.

IRON AND STEEL SCRAP PRICES

	Heavy melting steel.			No. 1 cast.	
	Pitts.	Phila.	Chic.	Pitts.	Chic.*
Jan., '22	14.67	11.45	11.70	16.60	12.75
Feb. ...	14.25	11.50	11.75	16.25	12.80
Mar. ...	25.35	11.75	12.50	16.25	13.50
April ..	16.60	14.25	13.80	17.25	14.70
May ...	17.25	14.70	14.95	18.25	15.80
June ...	17.25	14.50	14.80	18.60	15.50
July ...	16.85	14.40	15.40	19.25	16.00
Aug. ...	17.45	14.75	16.00	19.35	17.25
Sept. ..	20.00	17.00	17.50	21.75	18.60
Oct. ...	21.00	18.35	18.65	24.00	19.60
Nov. ...	20.50	16.65	17.60	23.20	18.50
Dec. ...	20.40	16.70	17.50	22.75	18.35
Year ..	17.63	14.67	15.18	19.46	16.11
Jan., '23	22.00	20.85	19.30	23.50	20.40
Feb. ...	23.35	21.10	20.00	24.15	22.50
Mar. ...	25.30	35.25	23.45	26.25	24.75
April ..	25.00	24.00	22.25	27.15	23.20
May ...	22.50	20.25	19.50	26.25	20.75
June ...	21.10	18.30	18.25	24.40	18.85
July	18.35	17.10	17.20	21.85	18.15
Aug. ...	17.90	16.25	16.20	21.75	17.75
Sept. ..	17.90	17.05	16.50	21.65	19.25
Oct. ...	15.80	16.40	14.35	19.85	17.25

* Per net ton.

SCRAP

In all districts scrap prices delined rather sharply in October, while September had shown a slight stiffening if not some actual advances.

All consumers were very niggardly about buying, evidently being bent upon liquidating stocks fully. Dealers do not feel that prices have declined enough to justify beginning to fill yards for the next upward movement, but are watching the situation carefully in this connection.

FERRO-ALLOYS

Early in October British producers of ferromanganese were seeking business in the United States at $115 to $117.50 United States seaboard duty paid, but with free offerings of resale lots and relatively little demand, the market sagged to $108 to $110 with sales of a few carload lots of resale material. Finally on October 24th British producers sought to compete for business here more energetically at $110 a ton seaboard, duty paid, that is, they made a reduction of $5.00 to $7.50 in their previous asking pirces. For a week or so when it seemed that most of the resale lots had been absorbed, the market developed a slightly better tone but, with freer offerings by domestic producers, the market again sagged and at the close of October, small sales of resale material were made at $107.50 a ton, both on the seaboard and in the interior.

The reduced output of steel by independent companies caused a falling off in buying of ferro-alloys. The largest interests make their own ferromanganese. When the month closed the market was still heavy and weak with the tendency downward rather than otherwise. As ferromanganese so with spiegeleisen. The demand was light and with freer offerings the market was dull and heavy, it being difficult to make sales even in small lots of 19% to 21% spiegel over $40.00 to $41.00 although some producers were still asking $42.00 for this grade and $41.00 for 16 to 19%.

Ferro-silicon 50% also continued to drag throughout the month it being difficult to make sales even of small lots at $80.00 to $82.50 per ton for 50% alloy. Bessemer ferrosilicon thus far has not been reduced in price but the market is weak and silvery iron has declined $2.00 a ton.

Ferro-tungsten has been extremely dull as a result of the light demand for tool steel. Ferro-chromium and ferro-vanadium have also been dull and easier in tone although prices have not changed essentially. Tungsten ore has sold in a very small way but prices are little better than nominal to-day at $8.35 for high grade and $8.00 per unit for ordinary Chinese ore. Most of the manganese and chrome ore bought early in the year bids fair to meet full requirements for the remainder of the year. The outlook for 1924 is not very clear and for the time being prices of ore remain nominal at 42c per unit for Caucasian 51% and for Brazilian, and 39c a unit for 48% Caucasian. There is a wide range on chrome ore prices, being quoted all the way from $18.00 to $28.00 a ton. Molybdenum ore, 85% concentrates, is nominally held at 75c to 85c a pound.

In the first eight months of this year imports of manganese ore into the United States amounted to 127,238 gross tons or only a little over 40% of the income during the corresponding period last year which amounted to 280,668 tons. An interesting point connected with these importations is that while theoretically there could be produced from this amount of ore during the first eight months of this year about 51,000 tons of ferromanganese, the actual production was 193,300 tons to October 1st. It is surprising that notwithstanding the decrease in output of pig iron production of ferromanganese continued high as noted last month. These facts indicate that supply of ferromanganese is abundant. It is evident that producers are working up old stocks of manganese ore or that supplies are coming from some unknown source.

COAL

Generally throughout the United States, the bituminous market is in the doldrums; there has been no improvement within the past month, and there is but little chance now that there will be any revival until after the first of the year at least.

This, at any rate, is the opinion expressed by producers and wholesalers, and there is every evidence that their survey is about correct. That little or no prospect of an improvement is held out is due in a large degree to the enormous production for the current

year and the fact that so much coal has been delivered on contracts that the violent reaction is noted in the spot demand.

The soft coal trade as a whole has been decidedly pessimistic, and does not see now any cause for rejoicing, but there are some signs that an optimistic note is developing because of the fact that the end of the current year is so near.

When it arrives, there will be drawn to a close one of the most unsatisfactory years recorded in the bituminous coal business when viewed from the standpoint of spot market conditions.

For the greater part of the past six months or more, soft coal producers and wholesalers have complained that the market was never slower than it has been in that period. That condition exists today, and will undoubtedly continue until the end of this year. It is attested to in part by the fact that at least fifty per cent. of the low volatile mines in the eastern mining regions are closed down, and the mines producing the low grades of coals have been unable to operate because of the meagre return from spot market sales. That is, in Pennsylvania and West Virginia, the low volatile mines are now operating at only fty per cent. of full time output.

On the other hand, the production rate for the country is better than 550,000,000 net tons a year, or a normal output when the average yearly consumption of the country is considered.

Actual consumption in the industrial plants and by the railroads of the country for the year may have been below normal to some extent. It is now estimated that the present consumption rate for the country is about 8,000,000 net tons weekly. The difference between the consumption rate and the production rate, therefore, has gone into storage, and the most recent estimates place the amount of soft coal now in storage at 60,000,000 net tons or better.

This means consumers have been stocking heavily for the last twenty-five or thirty weeks, and some of them are said to have on hand supplies sufficient for three or four months. This is borne out in part by the statements recently to the effect that some of the railroads and larger industrials had requested that shipments on their contracts be temporarily suspended.

It will be seen, therefore, that the consumers generally are entertaining but little worry as to the future. The wholesale branch of the trade expects that business might be stimulated somewhat after the first of the new year by adverse weather conditions and transportation delays that would cause car shortages. Another hope that they hold out is that anticipation of a bituminous strike in the Spring might also spur the buyers to action, but the latter apparently feel safe for some time to come in the matter of coal supplies, in view of their indifference toward spot offers and the reported efforts of some to prevail upon shippers to reduce current contract prices.

The generally adverse reports as to the bituminous markets cover practically the entire country, excepting that the rate of operation in some of the high volatile fields has been better than other sections because shippers have had large orders for the Great Lakes.

Through Duluth to the Northwest, the movement has been fairly satisfactory as public utilities have been in the market lately for both gas and steam coals, and orders from industries in that territory are fairly steady. No changes in quotations are anticipated for the remainder of the season, however.

Some of the best grades of Pennsylvania coals can be bought in spot market for prices ranging from $1.75 to $2.25 net ton at the mines. If prices were any lower, mines could hardly operate unless they were shipping large volumes at higher contract prices.

Run of mine coals from the West Virginia smokeless regions are selling at the same scales. Run of mine coals from Illinois, Indiana, Kentucky, and Tennessee are selling spot at $2.00 to $3.00 net ton at the mines. Fairmont (W. Va.) high volatile steam coal is in bad shape, and selling from $1.25 to $1.65 net. Around Pittsburgh, steam coals are selling in the neighborhood of $1.85 to $2.00. At tidewater (New York piers) there is much more coal than daily dumpings call for, and so much coal in the so-called "distress" class, that bargains are the feature of the market. The situation is also easy at Hampton Roads.

CONNELLSVILLE COKE

Coke prices declined only slightly in October, having had quite a shaking out in September. In the spot market both furnace and foundry coke declined 25 cents during the month, the market at the end being $3.75 to $4.00 for furnace coke and $5.00 to $5.50 for foundry coke.

The market was steadier at the end of the month than at the middle, when there was much coke on track awaiting shipping instructions.

An event in the month was the buying of coke from Youngstown Sheet & Tube Company by the Struthers Furnace Company, which normally uses Connellsville coke. The contract was for 15,000 to 16,000 tons a month, November to March inclusive, but being of the usual requirement character does not obligate the furnace company to operate throughout the period. The price is understood to have been below what any Connellsville operator could meet, anxious as one or two are to maintain an operation. In 1921 there was much selling of coke by steel companies having by-product ovens, the object being to keep ovens warm when the steel company's own furnace operations were insufficient.

The Engineer Who Spoils Jobs— An interesting letter on this subject was recently written to the editor of Power by F. P. Terry, of Belfast, Ireland, extracts of which are hereby reproduced: "A few days ago, on visiting a plant in which some years back I had control of the engineering side, I was somewhat surprised to find the present chief arrayed in a boiler suit so dirty from long wear that it would have been a disgrace to a self-respecting workman. Before and during my time the position was considered a 'collar and cuff' one, and the boiler suit appeared only occasionally for inspections that every chief must personally attend to if he intends having things right and taking no risks. But in this case I found, after inquiries, that my successor was continually in uniform, that the plant draftsman had the only 'collar and cuff' job going, and was fast qualifying for the chief's position, and in my opinion the sooner he gets it the better for our profession. Many engineers, I fear, are in a similar state as this one, not for lack of skill but from lack of respect for themselves and their profession, due to many causes, the most prominent being want of self-confidence, which is the first necessity if we are to lead and direct any organization or hold a position worth while. This state of affairs contributes more than anything else to the small salaries so often complained about by engineers, the majority of whom, I fear, are suffering from lack of confidence, and the best advice I can offer is to set about acquiring it by every means possible."

CAST IRON PIPE IN SEPTEMBER

The Department of Commerce announces statistics on the production, orders, sales, and shipments of cast iron pipe for the month of September, 1923. The report includes returns from 12 establishments and is confined to bell and spigot pressure pipe exclusively.

Total Tonnage for Each of the Principal Items of the Industry.

	Tons.
Cast iron pipe produced during the month	77,186
Cast iron pipe shipped during the month	78,101
Orders for cast iron pipe specified to be shipped from stock	14,215
Orders for cast iron pipe specified to be made	156,585
Orders for cast iron pipe not specified as to sizes	1,802

Comparative Summary By Months, 1923.

			Orders		
Month.	Production. (tons)	Shipments. (tons)	To ship from stock. (tons)	Specified to make. (tons)	Sizes not specified. (tons)
June	81,208	88,318	17,905	199,271	4,366
July	79,528	77,828	16,839	183,130	4,215
August	84,588	84,843	14,727	165,518	6,860
September	77,186	78,101	14,215	156,585	1,802

EXPORTS OF IRON AND STEEL PRODUCTS FROM THE U. S.

Value of tonnage and non-tonnage.

	*1923	*1922	1921
Jan.	$14,866,090	$15,141,083	$137,803,395
Feb.	14,865,590	12,950,603	101,205,061
Mar.	14,543,155	18,836,718	67,870,739
April	20,146,346	17,549,618	49,609,605
May	22,681,660	17,749,475	41,365,886
June	21,242,193	18,649,816	39,975,035
July	21,582,626	14,611,858	27,639,787
Aug.	19,402,293	13,963,749	27,647,816
Sept.	19,871,060	14,380,851	26,740,228
Oct.	.....	14,626,411	29,706,437
Nov.	.....	14,249,434	28,543,142
Dec.	.....	16,668,116	29,502,448

* Excluding machinery.

1922..	$ 188,841,433	1916..	$871,372,322
1921..	607,427,146	1915..	390,897,123
1920..	1,112,904,802	1914..	199,861,684
1919..	968,575,142	1913..	293,934,160
1918..	1,035,291,736	1912..	289,128,420
1917..	1,240,984,979	1911..	249,656,411

Tonnage Lines.

(Gross tons.)

	1923	1922	1921	1920
Jan.	123,190	160,920	547,394	333,601
Feb.	133,902	133,975	393,328	308,185
Mar.	163,920	208,843	230,635	417,216
April	177,471	198,830	162,592	395,120
May	203,389	230,062	104,072	420,359
June	171,183	212,295	119,081	402,707
July	168,558	157,169	86,523	458,866
Aug.	161,426	145,640	75,827	431,484
Sept.	172,499	129,475	95,169	409,200
Oct.	.....	132,924	106,582	452,015
Nov.	.....	127,782	122,290	434,297
Dec.	.....	150,170	134,415	498,765

Yearly totals.

1922	1,986,297	1916	6,105,881
1921	2,213,042	1915	3,532,606
1920	4,961,851	1914	1,549,554
1919	4,239,837	1913	2,745,535
1918	5,338,037	1912	2,947,596
1917	6,441,760	1911	2,187,724

IMPORTS OF IRON ORE INTO THE UNITED STATES.

	1923	1922	1921	1920
Jan.	205,532	19,433	82,424	88,881
Feb.	143,702	10,016	47,466	100,105
Mar.	166,626	12,013	26,483	108,643
April	171,459	2,710	35,645	88,670
May	263,792	29,707	58,704	103,325
June	277,380	133,817	8,424	104,364
July	439,367	166,711	7,040	28,846
Aug.	267,677	171,142	24,570	174,169
Sept.	261,609	138,838	4,954	73,675
Oct.	.....	*123,207	5,838	141,026
Nov.	.....	165,648	12,065	139,854
Dec.	.....	167,221	2,155	117,898

Yearly totals.

1922	1,140,463	1916	1,325,736
1921	315,768	1915	1,341,281
1920	1,273,456	1914	1,350,588
1919	476,461	1913	2,594,770
1918	787,468	1912	2,104,576
1917	971,663	1911	1,811,732

* Sept. 22 to Oct. 31.

BITUMINOUS COAL PRODUCTION

(Net tons of 2,000 lbs.)

	1923.	1922.	1921.
Jan. ...	50,178,000	37,604,000	40,270,000
Feb. ...	42,160,000	40,980,000	30,851,000
Mar. ...	46,802,000	50,167,000	30,392,000
April ..	42,564,000	15,700,000	27,553,000
May ...	46,076,000	20,601,000	33,330,000
June ..	45,490,000	22,309,000	33,896,000
July ...	45,126,000	17,003,000	30,385,000
Aug. ...	48,864,000	27,358,000	34,538,000
Sept. ..	46,700,000	39,510,000	35,127,000
Oct. ...	48,700,000	45,141,000	43,733,000
Nov. ...	.....	45,303,000	36,020,000
Dec. ...	.....	44,500,000	30,975,000
Total	413,960,000	405,944,000	407,000,000

CONNELLSVILLE COKE.

Spot for prompt, per net ton f.o.b. ovens.

	— Furnace —			— Foundry —		
	1923.	1922.	1921.	1923.	1922.	1921
Jan.	8.30	2.85	5.10	9.25	4.00	6.75
Feb.	7.30	3.10	4.80	8.50	4.15	6.15
Mar.	7.35	3.38	4.43	8.60	4.50	5.63
Apr.	6.25	4.44	3.60	7.80	5.21	5.15
May	5.25	6.50	3.40	6.50	6.75	5.10
June	5.00	7.50	3.12	5.85	7.85	4.67
July	4.60	11.35	2.95	5.60	11.70	4.20
Aug.	4.65	13.35	2.95	5.55	15.00	4.20
Sept.	4.60	11.50	3.26	5.90	13.25	4.34
Oct.	3.85	9.70	3.35	5.30	11.90	4.40
Nov.	....	7.35	3.15	....	8.70	4.17
Dec.	....	7.75	2.90	....	8.15	4.00
Av.	....	7.40	3.58	....	8.43	4.90

BRITISH IRON AND STEEL OUTPUT.

Pig Iron—(Gross tons).

	1923	1922	1921
Jan.	567,900	288,000	642,100
Feb.	543,400	300,100	463,600
March ...	633,600	389,800	386,000
April	652,200	394,300	60,300
May	714,200	407,900	13,600
June	692,900	369,200	800
July	655,100	399,100	10,200
Aug.	599,800	411,700	94,200
Sept.	.....	430,300	158,300
Oct.	.....	481,500	235,500
Nov.	.....	493,900	271,800
Dec.	.....	533,700	275,000
Total ...	.....	4,899,500	2,611,400

Steel Ingots and Castings.

	1923	1922	1921
Jan.	624,300	327,500	493,400
Feb.	707,100	418,800	483,500
March ...	802,500	549,400	359,100
April	749,400	404,200	70,600
May	821,000	462,300	5,700
June	767,700	400,200	2,700
July	624,300	473,100	117,200
Aug.	582,700	520,800	434,100
Sept.	.....	555,900	429,300
Oct.	.....	565,200	405,400
Nov.	.....	600,800	442,800
Dec.	.....	546,100	381,000
Total ...	.....	5,831,900	3,624,800

COPPER IN OCTOBER

October developments in copper were not encouraging to U. S. producers.

Selling prices suffered a further decline of 1c a pound. The late recovery of ¼c a pound was not very firmly established.

There is too much copper above ground for the health of the industry.

The indication is that surplus stocks in the hands of producers were increased in October about 20,000,000 pounds and on November 1st were approximately 265,000,000 pounds. As yet however, small effort seems to be put forth to reduce production. American refineries, from domestic and foreign material, are still turning out copper at the rate of about 200,000,000 pounds a month. In the first ten months of this year refined output is estimated approximately 1,833,000,000 pounds which is at an average rate of 183,300,000 pounds monthly.

Consumption of the United States is still relatively large but is decreasing rather than otherwise, and as there seems to be small prospect of increased foreign consumption in the near future It would seem that larger and larger stocks will have to be put into warehouse either at home or abroad. It is estimated that deliveries to home consumers in October were not far from 100,000,000 pounds. It is doubtful that exports from North and South America together were much if any over 75,000,000 pounds but, assuming that they were 80,000,000 pounds, would make total deliveries for the month 180,000,000 pounds.

It is estimated that total deliveries into foreign and domestic consumption in the first ten months of the year were close to 1,860,000,000 pounds, exceeding refined output by about 27,000,000 pounds.

According to the Geological Survey stocks of copper in the first of the year were about 277,000,000 pounds. A net decrease of 27,000,000 pounds in the first ten months of the year therefore, would bring stocks down to 250,000,000 on November 1st but the Export Association is said to have estimated stocks at the beginning 298,000,000 pounds including stocks abroad as well as in the United States.

Upon this basis surplus stocks today are very close to 270,000,000 pounds or about 4,000,000 pounds larger than our calculations based on monthly estimates.

This difference can readily be accounted for by revisions made in exports.

There seems reason to believe that domestic consumption will be further reduced in the next two months, but this is seasonable. In some quarters there is belief that decided improvement in buying by power companies and other public utility interests will take place next Spring but even if this expectation is realized there is small probability that it will be reflected in higher prices for unwrought copper if production is not curtailed.

Imports continue heavy. The receipts in August were the heaviest of record. September and October may not prove to be so large, but the indication is that during the first ten months of the year imports were fully 550,000,000 pounds. Exports during the same period were close to 624,000,000 pounds.

Thus the outgo has exceeded the income by only 74,000,000 pounds or at a monthly rate of 7,400,000 pounds. It is the enormous production in South America which has made the situation so difficult for United States producers because of the relatively lower cost of production at South American mines.

COPPER PRICES IN OCTOBER

	— New York —			— London —	
Day	Lake.	Electro.	Cast.	Stand.	Electro.
				£ s. d.	£ s. d.
1	13.75	13.30	13.06¼	62 5 0	66 15 0
2	13.62½	13.10	13.00	61 12 6	66 0 0
3	13.50	13.05	12.75	61 7 6	65 15 0
4	13.50	13.15	12.87½	61 12 6	65 15 0
5	13.50	13.20	12.93¾	62 5 0	66 0 0
8	13.37½	13.10	12.87½	61 10 0	65 10 0
9	13.25	12.90	12.62½	60 7 6	64 10 0
10	13.25	12.80	12.50	59 17 6	63 10 0
11	13.25	12.80	12.50	60 5 0	63 10 0
12	.....	.....	.....	60 2 6	64 0 0
15	13.25	12.85	12.50	60 12 6	64 0 0
16	13.25	12.85	12.50	60 12 6	64 0 0
17	13.25	12.85	12.50	60 17 6	64 0 0
18	13.25	12.85	12.50	61 0 0	64 5 0
19	13.25	12.75	12.50	60 12 6	64 0 0
22	13.25	12.65	12.45	60 7 6	63 15 0
23	13.12½	12.55	12.37½	60 5 0	63 15 0
24	13.00	12.52½	12.37½	59 15 0	63 10 0
25	13.00	12.52½	12.25	59 5 0	63 0 0
26	13.12½	12.55	12.25	59 15 0	63 0 0
29	13.00	12.55	12.25	60 2 6	63 0 0
30	13.00	12.50	12.25	59 17 6	63 5 0
31	13.00	12.50	12.25	59 15 0	63 0 0
High ...	13.75	13.35	13.12½	62 5 0	66 15 0
Low	13.00	12.45	12.25	59 5 0	63 0 0
Average.	13.26	12.81	12.55	60 12 3	64 5 0

An interesting report is given circulation which, while not to be taken too seriously, is worthy of note as showing the drift of sentiment in this country.

It is claimed that if there is not a change for the better in the near future an effort will be made to bring about legislation to place an import duty upon copper to protect the American producer. If such a move is made, however, it would be at the expense of the American consumer and the latter may be counted upon to resist strenuously any such legislation. It would seem also as really against the interest of producers in the long run, as the move would thus throw the foreign market into the hands of South American producers as the latter can sell to Europe at lower prices than the United States producers and still make a substantial profit. It is pointed out too that South American properties are credited with a yearly production of 500,000,000 pounds and rich potentially. The reliance which Anaconda Company is placing upon Chile to reduce its average cost of production may be counted upon as an effective block to the proposed import duty.

The narrow margin of profits of producers in the United States has brought about a strong effort to reduce cost of production. Anaconda Company has taken the initiative and on November 1st, wages of miners and smelter operators were reduced by 50c. per day.

The probability is that other mining companies will endeavor also to reduce costs but it will be difficult to reduce wages at all of the mines because there is a shortage of labor. In this respect it is important to note the findings of the United States Commission which recently made an investigation of conditions at the Butte mines.

The Government hearing was held primarily to obtain information on the output of gold and silver in the United States, but the facts brought out apply equally well to production of copper.

John Gillie, general manager of the Anaconda Copper Mining Company, declared that the Anaconda has been unable to obtain a sufficient number of men for underground working. When the mines were shut down some time since many miners of foreign birth returned to Europe and because of immigration restriction were unable to come back. Mr. Gillie declared that

(Continued on page 587)

Dallas Brass & Copper Co.

Manufacturers of

Brass and Copper Products

Prompt Mill Deliveries

Prompt Shipments From Warehouses

CLEVELAND CHICAGO DETROIT

WATERBURY COPPER AVERAGES

	1923.	1922.	1921.	1920.	1919.
Jan. ..	14.87½	13.87½	13.75	19.50	23.00
Feb. ..	15.75	13.37½	13.50	19.12½	18.00
Mar. ..	17.25	13.12½	12.62½	18.87½	15.50
Apr. ..	17.12½	13.00	12.75	19.12½	15.50
May ..	16.12½	13.37½	13.12½	19.00	16.37½
June ..	15.25	14.00	13.12½	18.50	17.75
July ..	15.00	14.12½	12.87½	19.00	22.00
Aug. ..	14.50	14.12½	12.25	18.75	23.00
Sept. .	14.00	14.25	12.37½	18.75	22.50
Oct. ..	13.25	14.25	13.12½	16.87½	22.25
Nov. ..	.....	14.12½	13.37½	15.25	21.00
Dec. ..	.....	14.50	13.87½	14.25	18.75
Av. ...	.....	13.84	13.06	18.06	19.63½

Annual Averages.

1918.....	24.75	1913.....	15.83
1917.....	30.11	1912.....	16.71
1916.....	28.85	1911.....	12.75
1915.....	18.94	1910.....	13.13
1914.....	13.91	1909.....	13.41

IMPORTS OF COPPER.

As compiled by the New York Metal Exchange and reduced to fine copper, in tons of 2,240 lbs.

	1923.	1922.	1921.	1920.
Jan.	16,500	5,500	17,500	16,500
Feb.	17,000	10,000	18,000	20,000
Mar.	23,500	15,000	10,000	17,500
April	15,500	16,000	15,500	12,000
May	34,000	12,000	7,000	23,000
June	28,500	19,000	9,000	22,000
July	23,000	19,500	14,000	12,000
Aug.	37,000	21,000	10,000	13,000
Sept.	.....	25,000	10,500	12,500
Oct.	.....	18,000	14,500	14,500
Nov.	.....	33,000	11,000	16,000
Dec.	.....	26,000	14,000	17,500
Totals ...	.....	220,000	151,000	196,500

EXPORTS OF COPPER.

As compiled by the New York Metal Exchange from Custom House returns, in tons of 2,240 lbs.

	1923.	1922.	1921.	1920.
Jan.	23,409	24,679	24,068	21,804
Feb.	21,643	22,910	27,748	25,700
Mar.	28,284	35,851	17,151	39.236
April	28.225	28,367	18,397	28,644
May	25,911	27,894	15,736	37,090
June	27,017	29,191	22,339	25,581
July	27,516	28,584	22,774	20,430
Aug.	30,458	26,889	19,110	20,121
Sept.	29,547	25,144	28,343	10,751
Oct.	.....	22,681	22,934	10,073
Nov.	.....	24,727	32,407	16,954
Dec.	.....	22,201	27,394	18,304
Total	.....	319,118	278,401	274,688

Annual Totals.

1919	227,169		
1918	328,844	1913	382,810
1917	493,256	1912	327,965
1916	327,310	1911	336,801
1915	270,704	1910	301,935
1914	360,229	1909	301,657

LAKE COPPER PRICES

Average prices in N. Y.—delivered.

	1923.	1922.	1921.	1920.	1919.
Jan. ...	14.92	13.76	13.53	19.76	21.75
Feb. ...	15.76	13.24	13.33	19.09	17.87
Mar. ...	17.26	13.03	12.58	18.87	15.48
April ..	17.13	12.91	12.89	19.05	15.73
May ...	16.12	13.42	13.12	18.85	16.30
June ...	15.24	13.97	13.04	18.55	17.93
July ...	14.95	14.07	12.75	18.83	22.08
Aug. ...	14.39	14.09	12.11	18.72	22.96
Sept. ..	13.95	14.19	12.23	18.53	22.48
Oct.	13.26	14.16	13.01	16.87	21.94
Nov. ...	.....	14.07	13.30	14.97	20.49
Dec. ...	.....	14.46	13.80	14.01	18.88
Average	.....	13.78	12.98	18.01	19.49

Annual Averages.

1918	24.68	1913	15.70
1917	29.18	1912	16.58
1916	28.17	1911	12.71
1915	17.64	1910	13.12
1914	13.61	1909	13.39

ELECTROLYTIC COPPER PRICES

Average prices in N. Y.—f.o.b. refinery.

	1923.	1922.	1921.	1920.	1919.
Jan. ...	14.66	13.60	12.85	19.02	20.00
Feb. ...	15.50	12.97	12.79	18.61	16.91
Mar. ...	16.95	12.84	12.23	18.36	15.01
April ..	16.81	12.71	12.54	18.54	15.40
May ...	15.63	13.29	12.83	18.28	16.01
June ...	14.88	13.71	12.76	17.97	17.65
July ...	14.59	13.90	12.35	18.61	21.71
Aug. ...	14.05	13.96	11.76	18.44	22.22
Sept. ..	13.60	13.88	12.10	18.04	21.95
Oct.	12.81	13.80	12.75	16.30	21.50
Nov. ...	.....	13.79	13.16	14.39	19.96
Dec. ...	.....	14.22	13.67	13.48	18.48
Average	.....	13.55	12.65	17.50	18.90

Annual Averages.

1918	24.68	1913	15.52
1917	29.19	1912	16.48
1916	28.46	1911	12.55
1915	17.47	1910	12.88
1914	13.31	1909	13.11

CASTING COPPER PRICES

Average prices in N. Y.—f.o.b. refinery.

	1923.	1922.	1921.	1920.	1919.
Jan. ...	14.30	12.96	12.61	18.81	18.48
Feb. ...	15.15	12.61	12.45	18.21	16.45
Mar. ...	16.64	12.54	11.83	18.11	14.82
April ..	16.60	12.46	11.82	18.40	15.06
May ...	15.45	12.84	12.24	18.16	15.49
June ...	14.57	13.33	12.08	17.65	17.17
July ...	14.30	13.34	11.68	18.12	21.10
Aug. ...	13.81	13.43	11.43	18.00	21.71
Sept. ..	13.41	13.39	11.75	17.76	21.28
Oct.	12.55	13.39	12.43	16.01	20.66
Nov. ...	.....	13.40	12.53	14.12	19.37
Dec. ...	.....	13.81	12.97	13.12	18.21
Average	.....	13.13	12.15	17.21	18.32

Annual Averages.

1918	24.68	1914	13.18
1917	27.64	1913	15.33
1916	26.51	1912	16.29
1915	16.76	1911	12.42

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the few immigrants who are able to return to this country from Europe seldom reach the west as they find employment in eastern industries.

It is estimated by competent men in the west that labor cost is 60% of the total expense of producing metals.

During September the labor turnover in the Anaconda mines was approximately 63%.

Testimony was also given that labor is inefficient and that competition between copper and coal mining properties is partly responsible for the labor shortage at the metal mines because of the higher wages paid to coal miners.

Coal mines are overmanned, those of the Anaconda by 100%. Coal miners want to work only three or four days a week and when it is desirable to run six days a week it is necessary to double the size of the crews. At the time the testimony was taken Mr. Gillie reported that coal cutters were receiving better than $16.00; contract miners $11.00 while day men were earning $7.45 a day.

At the copper mines in Butte, surface labor at that time was paid $4.75; underground labor $5.25 as a minimum and day men averaged $6.88 for an eight-hour shift. Since that time, as noted above, wages of labor at the copper properties have been reduced 50c. per shift for day labor and similar reduction for contract work. Mr. Gillie declared that under present conditions the only source of profit from copper mining is in the by-product. When copper is selling at 14c. the recovery of precious metals represents a return of about 2c. a pound.

At the beginning of October producers were obtaining 13⅜c. to 13½c. delivered for electrolytic. At the end of the month sales were being made at 12½c. to 12⅝c., the latter being a recovery of ⅛c. to ¼c. a pound from the lowest prices at which sales were made in the last week of the month. In fact it is understood that some electrolytic copper, possibly of South American origin, was sold as low as 12¼c. delivered and custom smelters and small producers made sales at 12⅜c. delivered in the Connecticut Valley.

Lake copper was held relatively higher than electrolytic in the east, but there were reports of sales in the interior at practically the same level as electrolytic. When the month opened it was difficult to buy lake copper under 13¾c. delivered for nearby shipment.

When the month closed it was difficult to make sales over 12¾c. delivered.

Casting copper commanded 13c. to 13⅛c. f. o. b. refinery at the beginning of October, but during the last few days of the month, sales were made at 12¼c. f. o. b. refinery for both domestic shipment and for export to China.

In the last few days of October there was a revival of speculative interest in late futures, especially in the second quarter of 1924. The fact that operators were eager to buy for March to June inclusive at substantial premiums over spot prices, indicates a revival of sentiment favorable to increased activity and higher prices next year. This sentiment however, does not find a reflection among consumers.

COPPER AND BRASS PRODUCTS

Outlook for rolled, drawn and cast copper, brass and bronze products improved somewhat toward the end of October after a most unsatisfactory month.

On October 26th the schedule of prices on all finished products was revised by a reduction of ½c. to 1c. a pound.

This was the first recognition of the break in producers' prices of unwrought electrolytic copper to the lowest prices of the year, 12¼c. to 12½c. delivered.

Electrolytic copper sold as low as 12½c. in both March and April 1922 and down to 12⅜c. in October 1921 while in September of the latter year sales were made at 11⅞c. delivered. Sales in late October this year, therefore, were the lowest since September 1921.

It is not surprising, therefore, that in the depressing atmosphere of the industry buyers of finished products should have lost confidence and for some weeks placed orders only to meet mandatory requirements.

The first revision of finished products made by the American Brass Company in October was on the 8th instant when a reduction of ½c. a pound on all copper bronze and brass sheets, wire, rods and seamless tubing became effective.

Independent manufacturers made similar revision in prices. The second reduction in prices, as above noted, ranged from ½c. to 1c. a pound, the heaviest decline, that is, 1c a pound being made on copper sheets and seamless tubing of

all kinds. The smallest reduction was ¼c. a pound on nickel silver. All other finished products, including tobin bronze sheets, were reduced ½c. effective October 26th.

The highest prices of both wrought and unwrought copper as well as other finished products of brass and bronze were made late in March and the lowest prices of the year late in October.

The revision in finished prices has been fully equal to the drop in prices of unwrought copper. It should be kept in mind, however, that prices for finished products given in the table are for small lots for shipment to small consumers. Mill prices range from ½c. to 1c. a pound in some cases below the prices for small shipments from warehouses.

Late in October there was some evidence that the lower prices current were attracting buyers. Some of the smaller manufacturers had been aggressive for business, in fact some of the independent manufacturers of copper and brass as well as of steel, were more in need of business than the larger interests and succeeded in attracting buyers at the expense of prices. About the middle of October various departments of the American Brass Company are understood to have been operating between 75 and 90% of capacity, an average possible under 80% of capacity utilized in March, while some of the independent plants were operating 10 to 15% less. Much earlier shipments were being made against contracts and current orders than at any previous time this year.

Toward the close of October, after a decline of 5c. to 6c. a pound from the high prices prevailing in March, some of the larger and even smaller consumers of finished products were inclined to place orders with less reserve than had been the case for several months but a considerable amount of conservatism was still evident where deliveries called for material in the Spring of 1924.

There is a wide range in sales made by various companies in October.

Those in the east, especially those selling wire and rods, reported a net improvement for the month, but this tendency was less pronounced in the interior. Toward the close of the month, however, a better sentiment was struggling for expression.

BRASS AND COPPER PRODUCTS.

The last two price lists issued follow:

COPPER PRODUCTS.

	Oct. 8	Oct. 26
Sheet copper	24¼	20¼
Copper bottoms	29¾	28¾
Copper in rolls	19¼	18¾
Brush copper	22¼	21¾
Sawed copper	22	21½
Drawn copper shapes	19¾	19¼
Commutator copper	21	20½

BRASS PRODUCTS.

Sheet Metal.

High brass	17½	17
Low brass	19¼	18¾
Rich low brass	19¾	19¼
Commercial bronze and gilding	21	20½
Best spring drawing and spinning brass	18½	18

Wire.

High brass	18	17½
Low brass	19¾	19¼
Commercial bronze and gilding	21½	21
Best spring and brazing brass	19	18½

Rods.

High brass (free turning)	15¼	14¾
Low brass	20	19½
Commercial bronze	21¾	21¼

Brazed Tubes.

Brass	25½	25
Copper and commercial bronze	30¾	30¼
Open seam brass	25½	25
Open seam copper and commercial bronze	30¾	30¼

Seamless Tubes.

High brass	22½	21½
Low brass	24½	23½
Commercial bronze	25½	24½
Copper	24	23

NICKEL SILVER.

10% grade A sheet metal	25	24½
15% " " " "	26½	26
18% " " " "	27½	27¼
25% " " " "	38	37½
5% grade B sheet metal	23	22¾
10% " " " "	24½	24¼
12% " " " "	25½	25¼
15% " " " "	26	25¾
18% " " " "	27½	26¾
25% " " " "	37½	37¼
5% wire and rod	25	24¾
10% " " "	28	27¾
12% " " "	29¾	29½
15% " " "	31½	31¼
18% " " "	34¾	34¼

TIN IN OCTOBER

The outstanding feature of the tin situation during October was the remarkably good showing of the London market, despite the absence of American consuming interest, and in face of statistical and political developments that ordinarily would have a depressing effect.

Influenced by the strong speculative bullish movement abroad, accentuated on October 1st by an advance of £3 15s for spot standard and £3 5s for spot Straits, domestic prices at the opening of the month advanced from ⅝c to ¾c above the level the market closed at in September, spot Straits being quoted at 42.12½c. The following day prices eased off ¼c to ⅜c a pound in sympathy with London and in consideration of the statistics, showing an increase of 1,110 tons in the world's visible supply to 19,864 tons.

Although the London market declined £2 7s 6d on October 3rd, due to continued speculation, the chief interest in the domestic market was the active purchases by dealers and operators in anticipation of small arrivals during the month. This movement gained momentum the next day by a sharp rise in London, thus advancing the price for October delivery to 42.75c, this level representing a premium of ¾c over prices for later deliveries. The stronger market in London on October fifth failed to stimulate domestic buying, because of the refusal of consumers to pay the higher prices asked for spot and October tin, and the continued lack of demand from this quarter had a dulling effect on London speculative activities, the market abroad subsequently declining £4 15s in three days on liquidation sales by bulls, bringing our market to 41.37½c.

Affected alternately by speculative activities in London and the pressure of resale offerings by local dealers, the movement of prices in the local market continued irregular until on October 25th, prices both in London and New York were stimulated by evidence of large American buying on the part of a prominent interest which advanced the price of spot Straits in the domestic market to 42.50c. Throughout the remainder of the month the market continued practically quiet, the few fluctuations which did occur being of a professional character, the price at the close of the month being 41.75c for Straits.

Highest price reached during the month was 42.75c; lowest, 41.00c, and the average for the month was 41.86c.

With a closely controlled market in London, due to the small stocks available for delivery against Standard contracts, and the large withdrawals of English refined tin for consumption in this country, the price of Standard tin was maintained in the face of large selling in the East and indifferent buying on the part of American consumers and operators.

A pleasant surprise near the close of the month was the good statement of earnings of the U. S. Steel Corporation together with an extra dividend on its common stock, putting it on a 6% basis, thus evidencing that the industrial outlook is regarded by the important interests on the board of this, our largest corporation, as much better than generally believed.

This and the continued bullish advices from the other side which appear at last to have made an impression, have caused an improvement in general business sentiment, particularly affecting the attitude of our tin consumers who have begun to make provisions for their future requirements. While there is no change in fundamental conditions and although the European political situation shows no betterment, it is begin-

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TIN PRICES IN OCTOBER

Day	New York Straits	New York 99%.	London Stand. £ s. d.	London Straits. £ s. d.	Singapore Straits. £ s. d.
1	42.12½	41.50	202 15 0	202 15 0	201 15 0
2	41.85	41.25	202 0 0	205 0 0	203 15 0
3	41.75	41.12½	200 17 6	204 0 0	201 15 0
4	42.75	41.87½	204 0 0	207 0 0	203 0 0
5	42.75	42.00	205 15 0	208 15 0	204 10 0
8	42.25	41.75	205 10 0	208 10 0	202 5 0
9	42.25	41.75	206 0 0	209 0 0	203 10 0
10	41.75	41.25	203 5 0	204 5 0	203 0 0
11	41.37½	40.87½	201 10 0	202 10 0	200 0 0
12	.....	.....	201 5 0	202 5 0	201 10 0
15	41.60	41.00	202 7 6	203 2 6	202 10 0
16	41.50	40.87½	201 15 0	202 15 0	201 10 0
17	41.75	41.12½	202 17 6	203 17 6	202 0 0
18	41.87½	41.37½	204 0 0	205 0 0	203 0 0
19	41.50	41.00	204 0 0	205 0 0	204 0 0
22	41.00	40.50	201 15 0	202 15 0	203 15 0
23	41.25	40.50	202 5 0	203 5 0	201 10 0
24	41.75	41.00	204 10 0	205 10 0	202 0 0
25	42.50	41.62½	208 0 0	209 0 0	203 10 0
26	42.37½	41.62½	207 12 6	208 12 6	206 10 0
29	41.50	41.00	205 5 0	206 5 0	205 10 0
30	41.75	41.25	206 5 0	207 5 0	203 15 0
31	41.75	41.25	207 10 0	208 10 0	205 5 0
High .	42.75	42.00	208 0 0	209 0 0	206 10 0
Low .	41.00	40.50	200 17 6	202 5 0	200 0 0
Av'ge	41.86	41.35	203 19 2	205 11 2	203 0 8

MONTHLY TIN STATISTICS

As published by the New York Metal Exchange in tons of 2,240 pounds:

	Oct. 1923.	Sept. 1923.	Oct. 1922.
Supplies—			
Straits	6,655	6,415	5,675
Australian	130	70	70
Banka and Billiton	787	1,073	1,421
Chinese	534	704	1,605
Standard	1,487	980	511
	9,593	9,242	9,282
Deliveries—			
U. K. all kinds	1,439	1,784	1,314
U. S. A. all kinds	5,540	4,540	5,603
Continent, all kinds	1,911	1,308	1,822
	8,890	8,132	8,739
Increase in total visible supply	703	1,110	543
Stocks—			
U. K. all kinds	3,024	3,038	6,153
U. S. A. all kinds	3,677	2,362	2,859
Continent, all kinds	1,887	1,983	2,461
	8,588	7,383	11,473
Afloat—			
U. K. all kinds	2,540	1,472	445
U. S. A. all kinds	7,914	10,079	9,645
Continent, all kinds	1,525	930	1,963
	11,979	12,481	12,053
Tot. visible supply	20,567	19,864	23,526

STRAITS TIN PRICES.

Average prices of Straits tin for prompt delivery in New York.

	1923.	1922.	1921.	1920.	1919.
Jan.	39.17	32.11	36.11	62.89	72.50
Feb.	42.03	30.82	32.47	60.00	72.00
Mar.	48.65	29.17	28.85	61.99	71.75
April	45.87	30.65	30.41	62.20	72.26
May	43.16	30.97	32.52	55.07	71.94
June	41.00	31.54	29.57	48.62	71.20
July	38.48	31.82	27.69	49.37	70.39
Aug.	39.39	32.43	26.40	47.69	63.78
Sept.	41.63	32.40	26.73	44.62	55.81
Oct.	41.86	34.64	27.74	40.64	55.62
Nov.	.....	36.72	29.02	37.02	54.17
Dec.	.....	37.68	32.49	34.15	55.06
Average	.....	32.58	30.00	50.36	65.54

Yearly Averages.

1919	65.54	1914	35.70
1918	86.80	1913	44.32
1917	61.65	1912	46.43
1916	43.48	1911	42.68
1915	38.66	1910	34.27

TIN DELIVERIES IN UNITED STATES

Monthly deliveries of tin in United States, exclusive of domestic refined tin, in tons of 2,240 pounds.

	†1923.	1922.	1921.	1920.	1919.
Jan.	6,625	4,275	1,555	3,910	1,850
Feb.	6,185	3,215	1,585	5,200	2,439
Mar.	6,634	6,030	1,683	5,130	2,070
April	6,775	4,995	1,590	3,305	36
May	6,035	4,740	1,225	3,550	20
June	5,410	5,130	1,590	6,500	68
July	5,305	4,590	1,525	5,530	132
Aug.	5,510	4,150	3,320	3,745	4,345
Sept.	4,540	5,050	2,605	4,860	4,825
Oct.	5,540	5,603	2,280	3,415	2,875
Nov.	.....	4,812	3,250	3,395	6,665
Dec.	.....	4,870	3,710	2,580	6,965
Total	.....	57,460	25,918	51,120	32,301

VISIBLE SUPPLY OF TIN

World's visible supply of tin at end of each month in tons of 2,240 pounds.

	†1923.	1922.	1921.	1920.
Jan.	25,765	26,216	18,994	21,056
Feb	25,157	25,047	17,074	21,586
Mar.	24,622	22,353	16,073	18,305
April	22,116	22,017	15,670	19,342
May	22,187	22,910	18,352	20,976
June	21,297	23,566	17,968	18,851
July	20,019	21,502	20,316	18,546
Aug.	18,754	24,176*	19,358	19,858
Sept.	19,864	22,879*	21,189	18,096
Oct.	20,567	22,902	23,349	19,964
Nov.	.....	25,286	22,806	19,823
Dec.	.....	24,930	25,220	19,410
Average	.....	23,649	19,697	19,726

* Includes current shipments of Banka and Chinese to U. S.

Annual Averages.

1919	12,890	1914	14,907
1918	13,894	1913	12,377
1917	18,803	1912	13,207
1916	18,585	1911	16,404
1915	15,208	1910	18,815

TIN SHIPMENTS FROM STRAITS

(Tons of 2,240 lbs.)

	†1923.	1922.	1921.	1920.	1919.
Jan.	6,255	5,515	1,055	3,910	3,340
Feb.	4,655	3,640	240	4,810	2,860
Mar.	6,020	4,985	915	2,795	2,254
April	4,490	5,350	1,800	3,872	1,127
May	5,535	6,420	3,667	4,930	1,704
June	5,390	6,505	1,425	4,261	1,629
July	5,025	4,035	3,975	3,865	7,302
Aug.	5,190	5,855	3,165	3,798	8,829
Sept.	6,415	4,050	5,300	4,529	5,465
Oct.	6,655	5,650	4,525	3,340	4,431
Nov.	.....	6,145	4,065	2,630	4,135
Dec.	.....	4,635	5,920	2,225	6,677
Total	.....	62,785	36,052	44,965	49,763

Annual Totals

1918	*55,000	1914	63,093
1917	62,366	1913	62,550
1916	61,587	1912	59,318
1915	66,517	1911	55,470

† Note — London Metal Exchange statistics. * Estimated.

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ning to be felt that we may be facing a period of inflation, this feeling being supported by the striking decline in sterling exchange.

The American deliveries of tin during October amounted to 5,540 tons. This is an increase of 1,000 tons over September and brings the total for the ten months up to 58,559 tons as against 48,778 tons during the corresponding period of 1922 and 51,910 tons in 1918 which was the previous high record.

We would point out that the above figures do not take into account the consumption of American refined tin, which averaged 966 tons per month during 1919; 1,210 tons during 1920; 732 tons during 1921; 765 tons during 1922 and about 750 tons during the first seven months of this year. The refining of tin in this country closed at the end of July and except for small operations cleaning up odd lots of concentrates the smelters have not operated since then. Looking at it from this angle the total deliveries of tin in the United States during the past three months were 2,200 tons less than in the corresponding period a year ago, thus:

	(Aug.-Sept.-Oct.)	
Deliveries of	1923	1922
Foreign tin	15,590	15,803
Domestic tin	200	2,200
Total	15,790	18,003

American Stocks on October 31st.

The stocks of tin in warehouse and on dock in the port of New York on October 31st amounted to 3,677 tons, of which 722 tons were in warehouse and 2,955 tons on dock or landing. On September 30th, the New York stocks amounted to 2,360 tons, so there was an increase for the month of 1,317 tons.

There is no fault to be found with the statistical position and on the present status of supply and demand the situation is a very healthy one, but in order to remain so, there must be no let-up in consumption.

The fact that the liquidation of the surplus stocks in the East is being accomplished at rising prices helps to substantiate the contention that the current output of tin is insufficient to provide for consumptive demands.

On the whole the domestic tin situation is very good and unless unforeseen developments arise to change the present better attitude of consumers and operators concerning future conditions, prices may be expected to show considerable improvement.

The basis on which certain London interests are building their opinion that tin is to go much higher in the next 12 months, are:

(1) That American consumers have underestimated the strength of the position, and while fairly supplied up to January 1st are very poorly contracted beyond that date, and must buy heavily during the next few months.

(2) That consumption next year will be fully as large as this year.

(3) That since April 1st when the Malay and Dutch Governments started to liquidate their surplus stocks, the extension over shipment has been no less than 783 tons per month and during that time about 380 tons per month of the above surplus Government stocks have been absorbed.

To sum up, tin is the only metal in which the production is less than the consumption, with every indication that this is to be continued.

ZINC IN OCTOBER

The market for zinc during October has fluctuated over a narrow range. The price for prime western East St. Louis basis at the opening of the month was 6.30c, and this proved to be the average for the entire month with a variation of only about ten points above and below.

Domestic demand was disappointingly light, consumers continuing the hand-to-mouth policy of buying that has prevailed for so long.

Foreign buying, however, reappeared for a short while, about the middle of October, which was attributable partly to the disaster in Japan anl the sales to that country of a heavy tonnage of galvanized sheets from English manufacturers. But for the most part the London market was a little too low for sustained buying of American product. Furthermore, at the end of the month the spot price in London developed weakness as compared with that of futures, an indication that heavy arrivals from this country were not entirely digested.

The proximity of the point of export, however, furnished a sustaining element which was sorely needed in view of the statistical position to which we

shall presently allude, and in fact even the large exports actually accomplished do not avail to render that position a favorable one. This is shown by the following figures published by the American Zinc Institute:

Zinc, all grades—Tons of 2,000 lbs.	
Stock, October 1st	22,893
Produced	42,098
	64,991
Shipped	39,204
Stock, October 31st	25,787
Shipped from plant for export	6,978
Shipped from plant for export, Domestic account	32,226
Stored for customers	331
Retorts operating, October 31st	84,559

This shows an increase in stocks for October of 2,984 tons, and that the production was nearly 10,000 tons in excess of domestic needs.

There is expectation of further export as English galvanizers are well booked into the first quarter of next year, and but little surplus is available from the Continent. Belgian output, in spite of advanced prices has continued at about the average rate for the year, approximately 11,000 tons per month.

The zinc ore market has been maintained through the limitation of output by the adoption of three weeks a month scale of production which was in force in October, and which will continue in November and December. The effect of this on smelters' costs was also of steadying tendency, but in summing up the situation at the close of October, it would seem that a strong revival of domestic demand is needed to prevent an overweighted condition, even if export continues at present volume.

WATERBURY ZINC AVERAGES.

	1923	1922	1921	1920	1919	1918
Jan.	8.00	5.25	6.05	9.75	9.00	9.60
Feb.	8.00	5.00	5.50	9.40	8.10	9.60
Mar.	8.70	5.10	5.25	9.15	8.00	9.40
Apr.	8.25	5.40	5.20	8.85	6.90	8.50
May	7.60	5.55	5.30	8.30	6.80	8.95
June	7.00	5.85	5.00	8.15	7.25	9.50
July	6.80	6.20	4.80	8.45	8.10	10.30
Aug.	7.10	6.50	4.70	8.55	8.15	10.45
Sept.	7.30	7.10	4.75	8.45	7.85	11.20
Oct.	7.10	7.65	5.10	7.50	8.15	10.60
Nov.	....	7.90	5.15	7.00	8.55	10.20
Dec.	....	7.90	5.30	6.40	9.05	10.00
Av.	....	6.28	5.17½	8.33	8.00	9.86

JOPLIN ZINC AND LEAD ORE

Review for October 1923

There was a steady increase in the price paid for zinc during the month of October. The month opened with the base price at $38.00 and advanced to $40.00 at the close of the month. Shipments of zinc ore aggregated 43,155 tons during the month, an average of 10,788 tons, with an average price of $38.85. This compares with a total tonnage of 67,226 for last month, with an average price of $39.44. The average price paid for zinc ore one year ago was $41.13.

Weekly purchases of zinc ore during the month were exceptionally good, running from 9,800 at the first of the month to 19,000 the last week of the month, which was the second largest purchase of the year.

Calamine prices for the month were $28.00 to $29.00.

Lead ore showed a decrease in price during the month, the price dropping from $83.00 to $80.00. Shipments of lead ore for the month amounted to 5,425 tons, with an average price of $81.74 which compares with $85.31 for last month and $87.07 for October of 1923.

The surplus stock in the bins is now estimated to be in the neighborhood of 67,000 tons. This surplus will be decreased several thousand tons during the first week of November when mines will again close down for a period of one week.

PRIME WESTERN ZINC PRICES.

Average Prices, East St. Louis Basis.

	1923	1922	1921	1920	1919	1918
Jan.	6.96	4.71	5.44	9.22	7.12	7.71
Feb.	7.25	4.50	4.95	8.82	6.37	7.73
Mar.	7.87	4.65	4.73	8.62	6.18	7.42
Apr.	7.32	4.91	4.75	8.26	6.16	6.81
May	6.72	5.10	4.86	7.72	6.11	7.14
June	6.05	5.35	4.44	7.58	6.57	7.85
July	6.09	5.77	4.27	7.82	7.56	8.43
Aug.	6.35	6.24	4.19	7.95	7.50	8.73
Sept.	6.46	6.56	4.25	7.77	7.20	9.31
Oct.	6.30	6.85	4.61	7.25	7.49	8.77
Nov.	....	7.14	4.68	6.37	7.83	8.39
Dec.	....	7.12	4.85	5.84	8.40	8.21
Av.	....	5.74	4.67	7.77	7.04	8.04

Annual Averages.

1917	8.93	1912	6.93
1916	13.57	1911	5.70
1915	14.16	1910	5.42
1914	5.11	1909	5.39
1913	5.61	1908	4.62

LEAD AND ZINC PRICES IN OCTOBER

Day	LEAD New York*	LEAD St. Louis†	LEAD London £ s d	ZINC New York§	ZINC St. Louis	ZINC London £ s d
1	6.85	6.97½ 6.70	26 7 6	6.65	6.30	32 17 6
2	6.85	6.97½ 6.70	26 5 0	6.65	6.30	33 0 0
3	6.85	6.97½ 6.67½	26 7 6	6.62½	6.27½	32 15 0
4	6.85	6.97½ 6.67½	26 7 6	6.62½	6.27½	32 15 0
5	6.85	6.97½ 6.67½	26 10 0	6.65	6.30	32 7 6
6	6.85	6.97½ 6.67½	.....	....	....	.....
8	6.85	6.97½ 6.65	26 10 0	6.65	6.30	32 15 0
9	6.85	6.97½ 6.65	26 10 0	6.62½	6.27½	32 10 0
10	6.85	6.97½ 6.62½	26 7 6	6.60	6.25	32 5 0
11	6.85	6.85 6.60	26 7 6	6.55	6.20	32 0 0
12	....	....	26 10 0	....	....	31 17 6
13	6.85	6.85 6.60	.....	....	....	.....
15	6.85	6.85 6.60	27 0 0	6.57½	6.22½	32 7 6
16	6.85	6.85 6.60	27 7 6	6.62½	6.27½	33 0 0
17	6.85	6.85 6.60	27 10 0	6.70	6.35	33 10 0
18	6.85	6.85 6.60	27 7 6	6.75	6.40	33 15 0
19	6.85	6.85 6.60	27 12 6	6.72½	6.37½	33 12 6
20	6.85	6.85 6.60	.....	....	....	.....
22	6.85	6.85 6.55	28 0 0	6.67½	6.32½	33 7 6
23	6.85	6.85 6.55	28 15 0	6.65	6.30	33 7 6
24	6.85	6.85 6.57½	28 15 0	6.62½	6.27½	33 5 0
25	6.75	6.85 6.57½	29 10 0	6.62½	6.32½	33 10 0
26	6.75	6.75 6.50	30 5 0	6.72½	6.37½	33 12 6
27	6.75	6.75 6.50	.....	....	....	.....
29	6.75	6.75 6.45	30 10 0	6.67½	6.32½	33 10 0
30	6.75	6.75 6.45	31 10 0	6.67½	6.32½	33 10 0
31	6.75	6.75 6.45	31 10 0	6.67½	6.32½	32 7 6
High	6.85	7.10 6.70	31 10 0	6.77½	6.42½	33 15 0
Low	6.75	6.75 6.42½	26 5 0	6.52½	6.17½	31 17 6
Av.	6.83	6.87 6.59	27 16 4	6.65	6.30	32 19 0

* A. S. & R. price.

U. S. ZINC STATISTICS.

From the monthly reports of the American Zinc Institute, in tons of 2,000 lbs.

	Production 1923.	Production 1922.	Deliveries 1923.	Deliveries 1922.
Jan. ..	23,706	25,916	24,636	21,021
Feb. ..	42,443	22,513	48,153	24,067
Mar. ..	48,731	26,532	49,574	30,394
April .	46,866	25,506	47,911	34,040
May ..	47,347	27,419	43,304	38,738
June ..	42,840	28,547	38,686	39,380
July ...	43,065	31,917	38,998	32,875
Aug. ..	41,625	31,423	36,394	38,412
Sept ..	39,105	33,134	42,683	35,957
Oct. ..	.....	39,940	.....	40,703
Nov. ..	.....	40,200	.....	38,746
Dec. ..	.....	42,841	.....	44,086
Total	.....	373,678	.....	422,034

	Stocks at Smelters* 1923.	Stocks at Smelters* 1922.	Retorts in Operation* 1923.	Retorts in Operation* 1922.
Jan. ..	16,574	65,678	84,131	44,457
Feb. ..	10,864	64,124	86,931	43,357
Mar. ..	10,021	60,262	89,054	45,373
April .	8,976	51,728	89,203	42,773
May ..	13,019	40,409	86,731	48,765
June ..	17,173	29,576	84,455	52,677
July ..	21,240	28,618	82,075	54,909
Aug. ..	26,471	21,629	75,325	57,193
Sept. ..	22,893	18,806	81,849	65,936
Oct. ..	.....	18,043	.....	72,116
Nov. ..	.....	19,947	.....	75,664
Dec. ..	.....	18,252	.....	80,863

* At the end of month.

LEAD IN OCTOBER

There was a good business in lead during October, though without remarkable activity, and but little price fluctuation.

The American Smelting & Refining Company's contract price at the opening of the month was 6.85c. New York, and this was reduced on October 26th to 6.75c. The E. St. Louis market at the beginning of October was about 6.70c. for soft Missouri brands, but showed on the whole a downward trend, closing at around 6.45c. The comparative prices in the western and eastern markets thus showed an approximation to the normal freight differential, and in fact there were shipments about mid-October of Missouri lead to the New York district in competition with the "official" New York price, then 6.85c.

Consumption on the whole was in good volume. Cable and storage battery interests showed most prominently; the white lead business was also very good, particularly in the west, where little diminution had occurred and with renewed revival in the east; and other lines also fairly active.

The total shipments were sufficient to maintain a well-balanced condition of supply and demand, and the statistical position consequently has continued healthy, the surplus stocks altogether being quite inconsiderable.

Producers' commitments for possible deliveries during October were filled early in the month, and the advance bookings for November were also large.

The reduction in the American Smelting & Refining Company's price on October 26th was regarded by many as leaning to overconservatism, but it resulted in increased confidence and a quickening of demand and seemed therefore justified.

An interesting occurrence during the month was the purchase by the St. Joseph Lead Company of the Federal Lead Company's mines, referred to elsewhere in this issue.

A notable feature throughout October was the advance in lead abroad from £26 7s 6d at the opening, to £31 10s for spot lead at the close, at which time there was the exceptional premium of £3 10s for spot above futures on the London Metal Exchange. This was undoubtedly due to a "squeeze" in spot

lead deliverable on October London contracts, but nevertheless the actual condition of lead abroad is very strong.

Spain and Australia are still contending with labor difficulties and the leading Italian lead smelter has closed down. Strikes in Mexico also interfered with supplies, and on the other hand consumption abroad has been expanding to meet the long deferred war vacuum as well as general conditions will permit. The expectation is that demand abroad with high price levels there will continue for some time.

The effect of this will be to draw thither much of the Mexican supplies ordinarily available in the form of concentrates at American seaboard.

LEAD PRICE CHANGES.

The American Smelting & Refining Company's changes in the base price of lead since the beginning of 1922 are given below:

1922—		1923—	
Opening	4.70	Jan. 10	7.50
Mar. 30	4.80	" 22	7.75
April 3	4.90	" 23	8.00
" 7	5.00	Feb. 23	8.10
" 20	5.10	Mar. 1	8.15
" 24	5.25	" 2	8.25
May 16	5.35	April 19	8.00
" 18	5.50	" 28	7.75
" 29	5.65	May 3	7.50
June 7	5.75	" 9	7.25
Aug. 21	5.90	June 21	7.00
Sept. 14	6.00	July 2	6.65
" 19	6.10	" 3	6.50
" 22	6.25	" 5	6.35
" 27	6.35	" 6	6.25
Oct. 6	6.50	" 9	6.10
Nov. 1	6.75	" 10	6.00
" 2	7.00	" 23	6.25
" 24	7.10	" 27	6.50
Dec. 19	7.25	Aug. 27	6.75
1923—		Sept. 13	6.85
Jan. 9	7.40	Oct. 25	6.75

LEAD PRICES, ST. LOUIS.

Average Prices, East St. Louis Basis.

	1923.	1922.	1921.	1920.	1919.
Jan.	7.64	4.40	4.78	8.32	5.36
Feb.	8.16	4.40	4.29	8.62	4.83
Mar.	8.33	4.43	4.03	8.93	5.01
April	8.03	4.97	4.30	8.71	4.87
May	7.12	5.30	4.82	8.52	4.80
June	6.88	5.58	4.34	8.36	5.06
July	6.13	5.45	4.28	8.58	5.42
Aug.	6.51	5.55	4.23	8.89	5.60
Sept.	6.74	5.90	4.41	8.23	5.81
Oct.	6.59	6.36	4.47	7.08	6.22
Nov.	....	....	6.88	4.38	6.16	6.68
Dec.	....	....	6.99	4.40	4.75	6.96
Year	....	....	5.52	4.39	7.93	5.55

Annual Averages.

1918	7.25	1913	4.26
1917	8.92	1912	4.38
1916	6.80	1911	4.31
1915	4.57	1910	4.33
1914	3.74	1909	4.10

QUICKSILVER IN OCTOBER

The reassuring tone of the quicksilver market at the end of September gave place to an easier feeling early in October when prices of spot metal again dropped from $61.00 to $58.00 per flask but the decline was subsequently recovered and toward the end of the month, as well as early in November, spot was held at $62.00 a flask while metal afloat was sold at $60.00 to $61.00 a flask to arrive, in 25 to 50-flask lots.

Large buyers who have been confining purchases to current requirements, that is, who were buying only in small lots, came into the market for larger amounts at the lower prices. Both color manufacturers and furriers bought with less reserve which purchases were a factor in the recovery in prices but the optimistic sentiment entertained at the end of September was not justified by developments in October.

It is understood that several lots ranging from 100 to 300 flasks each came in from Spain in October but that Spain is now less of a factor as most of its stocks have been absorbed while offerings from Italy have been considerably above the relative prices prevailing in this market. Italian holders are still asking prices above the New York parity. The London market which had receded to £8 5s the latter part of September, recovered to £9 5s early in October and today the market is again stronger at £9 15s, which was the price prevailing at the end of October.

Some purchases of quicksilver are understood to have been made on Japanese account in London but relatively few sales in addition to those previously reported have been made in the local market.

In September exports of only 547 pounds were made while imports of 186,328 pounds equivalent to 2,484 flasks valued at $90,250 were reported by the Government.

ANTIMONY IN OCTOBER

There was considerable interest and activity in the market for antimony during October, with a net rise in price of over 1 cent per pound.

The month opened, however, with a sagging market which from 7.62½ for Chinese 99% duty paid f. o. b. New York reached 7.50c in the course of the first two weeks. At this point there was a clearing up of some outside parcels, that resulted in a closer concentration of the available spot stocks.

For many weeks direct offerings from China had been hard to obtain. The reports were that the civil war there had seriously affected the Hunan Province, the principal antimony producing district in China.

This continued reticence of the Chinese market finally began to impress buyers here, particularly as the equal aloofness of consumers had helped to bring about a condition of comparatively small shipments from China. There was thus a prospect of a stringency of supplies though with no immediate famine.

Operators started a buying movement shortly reinforced by consuming demand that carried the price to 8.75c., with apparently further upward tendency at the end of the month.

There was tangible evidence of the interruption in Chinese production in the fact that importers were forced to claim " force majeure" on October shipments from China.

ANTIMONY PRICES.

Prices for Chinese and Japanese antimony (ordinary grades) in New York.

	1923	1922	1921	1920	1919	1918
Jan.	6.81	4.45	5.22	10.53	7.59	14.23
Feb.	7.20	4.38	5.23	11.55	7.24	13.67
Mar.	8.75	4.25	5.30	10.97	6.83	13.12
April	8.38	4.88	5.15	10.45	6.82	12.52
May	7.43	5.42	5.25	9.44	7.56	12.41
June	6.84	5.13	5.06	7.93	8.37	12.99
July	7.05	5.08	4.68	7.43	8.81	13.18
Aug.	7.67	5.29	4.55	7.04	8.92	13.81
Sept.	7.52	6.43	4.53	7.10	8.53	13.93
Oct.	7.82	6.80	4.94	6.62	8.60	13.44
Nov.	....	6.54	4.66	6.05	9.06	9.10
Dec.	....	6.35	4.51	5.46	9.56	8.19
Av.	....	5.42	4.92	8.38	8.16	12.55

Annual Averages.

1917	20.73	1913	7.43
1916	25.33	1912	7.68
1915	29.52	1911	7.48
1914	8.53	1910	7.27

ALUMINUM IN OCTOBER

Another month has passed without any important developments in aluminum. Prices are largely nominal. It is understood that the Aluminum Company of America, which is supposed to have no fixed price, is taking some little business for virgin aluminum, 99% pure, at 26c to 26.50c delivered and for 98% to 99%, 25c to 25.50c delivered. So far as can be learned no important contracts have been closed for 1924 shipment but this is the time of year when contracts are usually entered into. Automobile manufacturers are among the largest consumers of aluminum but have been less conspicuous buyers within the last month. Production of automobiles is now receding slightly but more orders for closed models, which require a larger percentage of aluminum are being placed. Manufacturers, however, have considerable rolled and cast aluminum in stock and have not been conspicuous buyers recently.

Importers are willing to take orders for future delivery at 25c to 26c a pound delivered, duty paid, the same as the prices reported to be asked by the large domestic interest, but thus far there have been no important contracts closed. Remelted aluminum continues to be quoted at 23c to 24c for 98% to 99% and at 20c to 21c for No. 12 alloy.

Imports of aluminum including ingots, scrap and alloy, amounted to 3,171,431 pounds valued at $701,320. There was also imported last month 18,020 tons of aluminum ore, bauxite crude, valued at $95,539. In the first nine months of this year 33,016,041 pounds of ingots and scrap aluminum were imported into this

ALUMINUM PRICES.

Open market quotations on virgin aluminum 98-99% pure, in New York.

	1923.	1922.	1921.	1920.	1919.
Jan. ...	22.75	17.74	22.86	32.00	33.10
Feb. ...	23.25	17.33	24.50	31.83	32.26
Mar. ...	24.95	17.52	23.44	31.50	29.81
Apr. ...	26.00	18.06	23.25	31.61	30.67
May ...	26.24	17.92	23.06	31.95	32.21
June ...	26.25	17.87	22.75	32.00	32.83
July ...	26.25	17.87	22.62	32.00	32.57
Aug. ...	26.07	17.87	20.22	32.21	32.23
Sept. ...	25.50	18.26	19.02	31.44	32.50
Oct. ...	25.50	20.51	17.85	29.12	32.50
Nov. ...	.....	21.66	17.50	27.80	32.50
Dec. ...	.....	22.52	17.50	23.83	32.48
Av.	.....	18.68	21.21	30.61	32.14

country having a value of $6,408,030. In the corresponding period last year imports amounted to 31,482,893 pounds.

Aluminum In Ceylon.

Recent mineral developments on the Island of Ceylon have revealed the possibility of the establishment of an important industry in the production of aluminum. In the low country of Ceylon a rock is found called laterite, which in its soft form is treated by sifting and sedimentation with water. The silt thus obtained is treated with sulphuric acid and results in a pure alum being formed after the crystallization of the extract. The alum as derived from the process is pure, and it is reported that the construction of a chemical plant for the manufacture of sulphuric acid and for the manufacture of aluminum will be undertaken.

ALUMINUM, ANTIMONY, SILVER AND STERLING EXCHANGE QUOTATIONS IN OCTOBER

Day	Aluminum	Antimony	Silver — N. Y.	Silver — London.	Sterling Exch.
1	25.50	7.62½	.64½	31 7/16	4.54
2	25.50	7.62½	.64½	32¼	4.54 3/8
3	25.50	7.60	.64⅛	31 3/8	4.54½
4	25.50	7.55	.64	31 3/8	4.55 3/8
5	25.50	7.55	.63⅞	31¾	4.55⅝
6	....	...	.63 3/8	31½	....
8	25.50	7.55	.63½	31 3/8	4.55¼
9	25.50	7.55	.63⅝	31⅛	4.55 3/8
10	25.50	7.50	.63⅞	31⅝	4.55
11	25.50	7.50	.63½	31½	4.54 13/16
12	.....	....	....	31 5/16	....
13	.....	....	.63¼	31⅛	....
15	25.50	7.50	.63¼	31⅛	4.53½
16	25.50	7.50	.63¼	31 3/8	4.53⅝
17	25.50	7.55	.63¼	31 3/8	4.53
18	25.50	7.62½	.63¼	31 3/8	4.52 3/8
19	25.50	7.62½	.63 3/8	31½	4.52
20	.....	....	.63 3/8	31½	....
22	25.50	7.75	.63¾	32 3/8	4.49¼
23	25.50	7.90	.63⅝	31 7/16	4.49⅛
24	25.50	8.12½	.63⅞	31⅞	4.49⅛
25	25.50	8.25	.63½	31⅞	4.48¼
26	25.50	8.37½	.63¾	31 15/16	4.50
27	.....	....	.63¾	31½	....
29	25.50	8.50	.63¾	32	4.48⅝
30	25.50	8.50	.63⅝	32	4.48½
31	25.50	8.75	.63⅜	31⅞	4.48½
High	26.00	8.75	.64½	32 3/8	4.45⅝
Low	25.00	7.45	.63¼	31⅛	4.48¼
Av'ge	25.50	7.82	.6365	31.59	...

PLATINUM IN OCTOBER

As a result of an improved demand and a reduced supply of refined following smaller importations of crude, a stronger tone was developed in platinum in October, the official price advancing from $116 to $120 at the end of October. Whereas the official price had been shaded $3.00 to $4.00 an ounce in September, the rising market brought about smaller concessions on actual business for soft. Other grades were also advanced correspondingly with soft, medium bringing $127 and hard, $136 an ounce although some dealers were asking a further advance of $2.00 an ounce for small lots.

Stocks which had increased during September while buying was light, were considerably reduced during October. At beginning of November there was a further advance in the official price of soft to $125 an ounce but actual selling prices were several dollars an ounce less, although there is now less disposition to shade the official prices than there was in September and early October.

Importations of crude platinum which had increased in September fell off in October and with less pressure to sell the market developed a stronger tone, prices advancing from $110 at the end of September to $116 an ounce at the end of October and to-day it would be difficult to buy an appreciable amount of crude under $115 an ounce.

Palladium was not especially active in October and there was but little change in prices, sales still being made within a range of $78.00 to $80.00 an ounce, the outside price for small lots but small lots are now being held at $81.00 an ounce. Iridium, however, developed a stronger tone and although the demand was only moderate, the market was stronger at $290 to $300 an ounce while early in October some business was done at $280 an ounce.

Exports of platinum in August were 544 troy ounces of ingots and sheets and 95 ounces of manufactures having an estimated value of $70,524. In August, 1922 exports were 187 ounces valued at $13,322 covering ingots and sheets. In September 130 ounces, valued at $16,560, ingots and sheets were exported while exports of manufactures were only 12 ounces valued at $6,090.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., required by the act of Congress of August 24, 1912, of STEEL AND METAL DIGEST, published monthly at New York, N. Y., for October 1, 1923.

State of New York, County of New York: Before me, a Notary Public in and for the State and county aforesaid, personally appeared C. S. Trench, who, having been duly sworn according to law, deposes and says that he is the Editor of the Steel and Metal Digest,

and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, printed on the reverse of this form to wit:

1. That the names and addresses of the publisher, editor, managing editor, business managers are:

Name of— Post Office Address

Publisher,
Tho American Metal Market Co.,
81 Fulton St., N. Y. C.
Editor, Charles S. Trench,
81 Fulton St., N. Y. C.
Managing Editor, Charles S. J. Trench,
81 Fulton St., N. Y. C.
Business Mgr., Charles S. J. Trench,
81 Fulton St., N. Y. C.

2. That the owners are:
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81 Fulton St., N. Y. C.
Charles S. Trench, 81 Fulton St. N. Y. C.
Charles S. J. Trench,
81 Fulton St., N. Y. C.

3. That the known bondholders, mortgagees and other security holders owning or holding 1 per cent. or more of total amount of bonds, mortgages, or other securities are: **Brooklyn Trust Co.** Brooklyn, N. Y.

4. That the two paragraphs next above giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner, and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

(Signed) Charles S. Trench,
Editor.

Sworn to and subscribed before me this 1st day of October, 1923.

Walter S. Byrne,
(Seal) Notary Public, Kings County.
Ctf. filed N. Y. Co.
(My commission expires March 31, 1925)

WHERE DOES THE STEEL GO?

"One sometimes wonders where all the steel goes that is turned out annually in millions of tons throughout the civilized world," says **Iron and Steel of Canada.**

"The production per capita continues to increase, particularly on this continent; yet it is absorbed readily, and the fact that prices are not reduced materially is sufficient evidence that there is a genuine and active demand for all that is made. The expansion of population accounts, no doubt, for much of this increased production; but we would judge that new uses for steel account for a larger fraction of the increase.

"Consider, for instance, the rapidity with which steel is replacing wood for certain uses. Comparatively few wooden bedsteads are made today. Office furniture of steel construction is replacing rapidly the inflammable variety. The use of electric and oxy-acetylene welding has made this economically feasible. Already steel has completely replaced timber in ship construction and in large buildings, and now the rising cost of timber and the urgency of fire underwriters have induced its use even in small buildings. Soon we shall not be content to live in houses whose walls and roofs make them firetraps, and steel will be still further used, in conjunction with other non-inflammable building materials.

"New needs account for another important fraction of the increased use of steel. At the beginning of this year there were 14,500,000 registered motor vehicles in the world; of these 12,760,000, or 88%, were in the United States and Canada. The output on this continent for 1923 is estimated at 3,000,000 vehicles. Consider how much iron and steel this represents, to say nothing of the other metals. Yet at the beginning of this century the use of automotive road vehicles had barely commenced.

"Who can say what the next great new market for steel products will be? The minor metals, such as aluminum, nickel, copper and zinc are replacing it for many uses; yet they affect hardly at all its volume of production. It use progresses in great strides. There are now 400,000 men engaged in building motor vehicles alone — a subsidiary, so to speak, of the iron and steel industry that has grown to vast dimensions in less than a quarter of a century."

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THE BUSINESS SITUATION

Constructive measures are in the making but the business situation is still complex. Support given by President Coolidge to tax revision plan of the Secretary of the Treasury is most welcome to business men. Most other recommendations made by the President to Congress are such as to inspire confidence in industrial circles. Opposition to a soldiers' bonus; abolition of tax-exempt bonds; approval of the Esch-Cummins Act; a stand for just and reasonable railroad rates; opposition to relief of agriculturists by leaning upon the public treasury; preference for private instead of public operation and ownership of coal mines and merchant ships; favorable consideration of a world court; refusal to "make merchandise of any American principles" in political or social relations with Soviet Russia and adjustment of Allied debts are the main points of the President's message which have a strong bearing upon commercial and financial affairs of the country. If the President's recommendations to Congress are acted upon favorably and promptly a strong tonic will have been administered to the economic system by which the common weal will be promoted.

Tax Revision.

Unfortunately Congress plagued by a strong radical element cannot be relied upon to legislate fully and favorably in conformity with the President's suggestions. Consequently a conservative attitude is still being maintained by enterprisers. Hope is entertained, however, that the conservative element in Congress will prove the stronger and afford the country relief by carrying out the proposals of the Secretary of the Treasury who points out the necessity for "the readjustment of the surtaxes on a basis that will permit capital to seek productive employment and keep it from exhausting itself in tax-exempt securities." He adds, "The productive use of capital in our railroads and industries will also tend to bring lower cost of transportation and manufactured products, thus helping to relieve the farmer from the maladjustments from which he now suffers."

Soldiers' Bonus.

The strongest argument against the soldiers' bonus is perhaps the Secretary's statement that the public debt has been reduced from $26,000,000,000 to $22,082,000,000. Even the latter amount is twenty-two times the indebtedness of the United States Government in 1916. The remarkable decrease in the public debt has been brought about, the Secretary shows, "by most rigid economy and the application of business principles to the Government's finance."

It should be recognized that great Government expenditures could not be undertaken at the present time without further derangement of industry and business.

Care for Disabled.

In commenting upon the bonus proposition George E. Roberts of the National City Bank, reviewing economic conditions, says: "Nobody wants to antagonize the soldiers or appear to be lacking in appreciation of their services. The services rendered by soldiers to their country are indeed so great as to be immeasurable and beyond any calculation of monetary compensation. Men take arms to defend their country's right as men take arms to defend their homes and the inheritance which will belong to their children.

"This does not signify that no financial obligations run from the country to the soldiers. The appropriations of over $400,000,000 a year (a sum about equal to one-half the total annual expenditures of the Government before the war) for those suffering from disabilities are approved by all. That obligation must be met in unstinted measure.

"It is assumed that in due time, whether the pending "readjustment" is made or not, pensions will be liberally granted to all who become incapacitated from any cause. The country never will be unmindful of the services that have been rendered and gratitude will be shown in many ways. The objections raised to undertaking great money payments at this time are that they cannot be made without a derangement of business and industry too serious to be regarded without apprehension. It is not too much to say that many of the advocates of such a measure have little comprehension of what is involved.

The soldiers themselves have more to gain by general prosperity, affording full employment and business opportunities at this period of their lives than by any payment which it is practicable to give them from the treasury."

Outlook for 1924.

In reviewing the business and industrial situation, Secretary Mellon points out that trade recovery "reached its climax for the year in the early part of April" and that industrial activity has since abated.

"The ideal equality of purchasing power, which is the condition of full prosperity, has not even yet been attained," but, he thinks that the factors which were most influential in the revival that has taken place since the depression of 1920-'21 are likely to remain effective next year even if the high rate of activity reached last Spring is not renewed. It is almost certain, however, that, if the Secretary's tax revision recommendations are adopted soon by the legislative body, business will improve decidedly in 1924.

Readjustment.

Some further but temporary trade reaction, however, seems probable. Consequently a conservative attitude is still being maintained. Manufacturers who have been benefiting recently by lower price for raw material and yet who maintain rigid prices for their own products could do much to increase business in the near future by granting concessions to consumers. A fair price or a normal price is that which will bring supplies sufficient to meet the demand and clear the market. The price must be fair to consumers as well as to producers under competitive conditions.

Cost of Production.

Earnings of many industrial companies have suffered in the last few years from the high costs of production resulting largely from high wages to labor.

It is estimated that 68% to 70% of the national annual income of $60,000,000,000 is distributed to labor as wages, 16% is paid in interest, 8% in land rent and 6% represents profits, including dividends. In other words, the business enterpriser, after paying wages to labor, interest to capital and rent to landlords has a relatively small share left for himself. Such industries, however, as those which sell their product directly to consumers, that is, those which make consumers' goods, are prosperous.

Transportation.

Transportation interests, apparently, have been doing relatively better than many manufacturing industries. Earnings of Class 1 railroads this year will be very close to $1,000,000,000. It is pointed out, however, that maintenance expenses have increased since September 1st. Mr. Mellon declares that the carriers need $1,000,000,000 a year in new capital if they are to operate efficiently enough to reduce rates. He appealed to Congress, therefore, not to do anything to hamper the railroads in raising new capital, saying that their condition would be an important factor in making 1924 a prosperous year.

Railway traffic has increased at such a rate recently that it is now predicted $8,000,000,000 will be needed in the next ten years to finance the carriers.

In that time it is estimated that there will be need to construct 38,350 miles of track and to buy 13,200 locomotives and 726,300 cars. Funds for elimination of grade crossings, electrification and other improvements must also be provided.

Railroad Credit.

"There is one unsatisfactory feature about the large capital outlays upon the railroads in the past year," Secretary Mellon says, "and that is they have been wholly provided by borrowing and are represented by bond issues. It is evident that they cannot be permanently financed in this manner. Unless a proportion of the new capital is provided in the form of proprietary investment, the credit of the companies will suffer. Interest rates upon their offerings will have to be advanced and in the end further borrowing will become impracticable. The public is interested in maintaining the credit and the service of the roads and especially interested now that their expenditures shall be in 1924, as in 1923, a strong supporting element in the general employment and business situation. The companies have been operating this year under conditions more than ordinarily favorable to earnings owing to the heavy volume of traffic, but they have not prospered alike in all sections of the country."

Railroad Equipment.

Railroad equipment orders have been very small since April. In the first week of December orders were placed for between 4,000 and 5,000 cars. The carriers naturally have been waiting for lower prices. To renew placing of contracts for cars and locomotives now after nine months of light buying will place a heavier burden upon the carriers than last Spring because prices of material, if not for labor, are higher.

It would seem that steel mills which are more largely dependent upon railroad orders at this time than in many years could afford to make concessions.

Car and locomotive builders usually are preferential customers of the steel works.

High Rail Traffic.

A new maximum for railroad traffic will be made this year. Freight loadings bid fair to exceed 50,000,000 cars.

This will happen even if weekly loadings fall to 900,000 cars in the last five weeks of the year.

Since the middle of November loadings have fallen nearly 50,000 cars weekly. Net earnings, however, will fall short of the 5% allowed on the tentative valuation of physical properties, contemplated by the railroad act. Any downward revision of freight rates, wanted by farmers and industrialists, would reduce railroad buying power.

The carriers doubtless will need more rolling stocks and motive power next year, but they are in better position to await a favorable buying market than at any time since the war.

Given a fair opportunity, railroad equipment buying, together with other construction work, will form the basis for a fair degree of activity in 1924.

Construction.

Steel mills this year will have furnished about 1,200,000 tons of steel for car and locomotive building, 2,300,000 tons of steel rails and 500,000 tons of track supplies or an aggregate of 4,000,000 tons of various products for railroad equipment. The total may possibly reach 5,000,000 tons. Building construction will have made a draft upon the mills for about 2,000,000 tons, including exports, or practically the same as in 1922. In other words the railroads and building contractors together will have consumed nearly 25% of the total output of finished steel products. We may not construct so many railroad cars, locomotives and buildings in 1924 as in the year just closing, notwithstanding the rosy forecast, but the orders placed by these two interests next year will doubtless be very satisfactory if prices of commodities are not kept at such a high level as to discourage purchases by carriers and building contractors.

Steel Orders.

Since early April orders for steel products have been steadily falling off. Unfilled orders of the subsidiary companies of the Steel Corporation alone will have fallen off by the end of the year 3,400,000 tons approximately.

The decrease in bookings has also been reflected in the output of ingots and rolled steel pro-

ducts. The peak of production was passed in April since which time there has been a steady decrease each month.

Notwithstanding this fact the total production of steel this year will be within a few hundred thousand tons of the maximum production reached in the war year, 1917.

Copper Industry

In large measure the steel and copper ndustries go hand-in-hand insofar as production and consumption are concerned. It is not surprising, therefore to find indications that the output of refined copper this year from domestic and foreign material will be exceeded only by two war years, 1917 and 1918.

Consumption of copper at home too will have been exceeded only by two war years, 1916 and 1918. Exports, notwithstanding the disability of Europe will make a very favorable comparison with either peace-time or war-time years. So far as prices are concerned those of copper have shown the greater deflation and apparently are less under control today than are those for steel products.

Straightening the Curves.

An effort to straighten the curves of the business cycle seems to be meeting with some success. Optimistic sentiments that have flooded the press, however, have made most impression in the stock market yet from this center the influence will radiate in time. Foundation exists for the determination to stabilize business in some industries at the present level of prices although the motive may be alloyed with self-interest.

An expression of pure altruism is scarcely to be expected in modern business but in recent years more consideration for the general weal has been evident in the words and acts of enlightened business executives.

Foreign Affairs.

Current events make it quite evident that the United States has little but trouble to expect from Europe in the near future. The British election has complicated rather than cleared the outlook abroad. The last word from Paris is a little more reassuring but political attitudes change so quickly and suddenly in Europe that confidence is a plant of slow growth. France apparently holds the key to Germany's industrial recovery but is half afraid to unlock the door. In ordinary times the state of international trade has a strong influence upon business here. Since the war, unsettled exchanges have reflected the departure from the gold standard by most foreign countries and the usual reaction here to industrial changes in Europe, is lacking.

At home constructive measures are in the making but the business situation is still complex.

LARGE PROSPECTS FOR BUILDING

At least as regards private dwellings, apartment houses and public building the prospects of activity in 1924 seem to be quite good. A detailed survey made by **Building Age** would indicate shortage or prospective building, whichever term one prefers to employ, amounting to over five billion dollars in money value for dwelling houses and apartments and about three billion more in schools, hotels, stores, office buildings, factories, etc., making say eight billion altogether. Taking three billion as normal for a year's building activity, a forecast is made that 1924 will run 25 to 50% above the normal.

Naturally it is recognized that a certain amount of building is occurring all the time and that swings of 25 to 35% below or 25 to 50% above the normal, whatever that may be, make a great difference in the appearance of things.

Last year and this have been the two greatest construction years we have had. With so much talk about high building costs it might have been expected that the building boom would end suddenly, that as soon as activity showed signs of tapering off prices would begin declining and prospective builders would be encouraged to wait.

There is no evidence just now of any such development. It seems more probable that declines in costs would uncover additional demand instead of discouraging the demand already visible.

As to costs, however, there appears to be no chance of pre-war costs being approximated. It may be just as well to take a broad view of this thing. It is true that building is done wastefully and expensively, through the machinations of the labor unions, but if the money value of the wastefulness were

computed it would hardly represent as large a percentage of the total present cost of building as is commonly assumed. There are several points that need to be considered, suggesting that building costs will hardly come down a great deal within a few years unless some radical changes occur in methods.

As to return to pre-war costs, the vital fact is that for years before the war building costs had been advancing.

The farther we get from the pre-war time the less chance there would be of the immediate pre-war level being restored.

Another point is lumber, which naturally becomes higher priced year by year as more of the virgin timber disappears.

Another point is freight rates, which we do not expect to decline a great deal from the present level.

Finally, there is labor. It seems to be the fact that the young men who are growing up to working age do not wish to any extent to become carpenters, plumbers and bricklayers. The fact has to be taken. If that is what they do not wish, then that is what they do not wish.

There is of course no particular advantage to the steel trade in this building activity when it runs so largely to dwelling houses, for steel consumption relative to volume of employment is much smaller in dwelling houses than in factories, skyscrapers and bridges.

GIVE THE RAILROADS A CHANCE

Among the various things that will engage, profitably or otherwise, the new Congress, is the matter of railroading.

There has been much agitation looking to a repeal or substantial amendment of the Transportation Act. There has been a little talk of giving the railroads something more, such as endeavoring to assign the Railroad Labor Board more power to prevent strikes, while the railroad spokesmen have said much about giving the railroads and the Transportation Act a chance, their contention being that 1923 is the first normal year in which to test the act.

The public ought to form definite and well thought out opinions on this railroad subject. The average voter merely has a notion, but there are many men who conscientiously desire to have a fair judgment. This is not particularly easy since nearly all the statements or arguments made about railroads are partisan, intended to support one interested viewpoint or another. This partisanship is of course not confined to railroad men, to railroad labor leaders and to politicians. It extends to men engaged in business, some of whom are more interested in having low freight rates for their goods while some are more interested in selling things to the railroads, directly or indirectly.

It is neither true that the railroads have not been greatly improved in the past few years nor that they are in an easy position with respect to the making of improvements. The truth lies between. The question is how much the railroads ought to improve, at this stage in the country's development.

Error may easily be made by assuming that the former rate of growth should continue. Every activity has to pass through successive stages. For a long time pig iron production doubled every decade, but it could not do that indefinitely, or there would be no time and energy for anything else.

On the question of railroad growth, it is an important fact, easily remembered, that up to say 1912 or 1913 the freight ton mileage of the country grew at a general rate of doubling every 12 years. The railroads were coming into their own. People were getting into the habit of shipping goods, and shipping them long distances. The railroads had finally reached their place. Growth afterwards would be at a slower rate, simply as population increased and by improvements man-power became more effective so that per worker, whether on the farm, at the mine or in the factory a little more tonnage could be shipped year by year and a little more could be consumed.

Freight ton-mileage doubling on an average every 12 years brought traffic to the point where there was 250 billion revenue freight ton-miles on Class 1 roads in the fiscal year ended June 30, 1911, a new high record. The calendar year 1922 was 11½ years later, and showed 339 billion, which was an increase of 35% instead of a doubling.

A guess for this calendar year, 12½ years later, would be about 420 billion, which would be 68% increase. This year is probably above normal, and one

can hardly be far out in taking it that while the employment of railroads in doing the country's work was occurring traffic doubled every 12 years and that while the employment is now simply being continued the increase in the same period would naturally run 40 to 50%.

This makes quite a difference. The capacity of the railroads does not need to increase as rapidly as formerly. As to investment, the railroads have had quite a growth. For Class 1 roads the property investment, including materials, supplies and cash, was $14,968,808,227 on June 30, 1911 and $20,878,743,796 on December 31, 1922. That is an increase of 39% in 11½ years and suggests that it is not true that the railroads have been overfed while it cannot be claimed that they have been absolutely starved.

THIS YEAR A RECORD ONE THUS FAR IN METALLIC IMPORTS

With the exception of the war years, 1915 to 1918, more metallic tin has been imported into the United States thus far this year than in any year in the last ten. The following table shows official import data of tin in pounds:

	Total Imports	Pounds per month
1913.....	104,282,230	8,690,186
1914.....	95,049,612	7,920,801
1919.....	89,698,391	7,474,866
1920.....	126,038,389	10,503,200
1921.....	54,201,481	4,516,790
1922.....	134,555,918	11,212,993
1923 to Oct. 1..	117,589,326	13,065,480

Already to October 1st this year, all peace-time records of importations had been broken at over 13,000,000 pounds per month, the nearest approach to this having been in 1920 at 10,503,200 pounds per month. If the rate maintained to October 1st is continued the rest of the year, over 156,000,000 pounds will have been imported in 1923 or larger than any of the war years, the record having been 143,636,782 pounds in 1917.

One cause of the present heavy receipts is of course the record production rate of tin plates this year, but another cause is also the shutting down of the American tin refining plants within the last year.

A CONTRAST IN STEEL EXPORTS

American exports of iron and steel are often compared with those of Gt. Britain but not so often with other nations. If the exports of Belgium and the United States are compared a very striking result is obtained. The official data are as follows in gross tons per month, scrap being omitted:

1923.	American	Belgium
January	122,500	202,200
February	132,600	162,200
March	161,500	200,000
April	174,400	192,000
May	195,500	181,200
June	172,000	184,500
July	166,500	217,200
August	130,800	210,500
1920	392,200	74,300
1913	241,000	128,800

The surprising fact is developed by these figures that in every month this year to September, except in May, the Belgian exports have been larger than the American. It is to be understood, however, that consequent as an economic union between Belgium and Luxemburg the steel exports of the latter country are included in the Belgian.

Nevertheless the fact stands out the steel exports of the great American steel industry are less than those of Belgium and Luxemburg combined, although before the war they were probably larger. In fact in August, this year, American steel exports were less than those of Great Britain, Belgium and France in the order named. During the entire year thus far British steel exports have commanded the largest volume of any nation.

We wish all our readers
A Merry Christmas
and
A Happy and Prosperous
New Year

THE OBSERVER'S CORNER

The signers of the Declaration of Independence proclaimed their belief that life, liberty and happiness constituted the chief heritage of man. In recent years, to judge by recurrent newspaper interviews granted by "captains of industry" and others, the chief good of man is "prosperity."

No doubt this familiar word can be precisely defined, and is well defined in the dictionaries. The dictionaries, however, are not responsible for the meanings men elect to assign to words. A generation or so ago, particularly during political campaigns, it appeared that the word "prosperity" and the phrase "full dinner pail" were synonymous. This did not last long enough to get into the dictionaries. The present day successor to "full dinner pail" seems to be "fliver"—without pursuing the subject to consider personal connection between flivver manufacture and any possible presidential candidate in the 1924 campaign.

Perhaps, to put it quite baldly, the chief idea in some of these prosperity predictions is: "Don't worry; there will be a job for everyone at good wages." However, the most commonly acceptable definition of prosperity would be progress and advancement.

To mean anything practical that would mean progress and advancement for the individual. The silver tongued orator of 28 years ago who opposed those who promised the full dinner pail as the substance of prosperity asserted that the rich were growing richer and the poor were growing poorer and if such a condition should exist yet with the total wealth of the country increasing it would not be satisfactory to the majority, hence we may take it that prosperity means progress and advancement for all individuals.

A very old question is brought up when we set down together the two words "happiness" and "prosperity" and then do a little pondering.

It is an old question, but perhaps we are getting to a point where we may expect some light to be thrown on it from a new source. The question is sometimes put thus: "Does prosperity bring happiness?"

For a people, progress means to a large extent the discovery of new things, steam engines, electric curling irons, automobiles, wireless, etc. For the individual, progress means getting them.

As we progress our lives become more complicated. We obtain more comforts. The more things there are invented the more things there are for us to want, and while we are progressing towards getting them all somebody invents something else so that most of us are never able to catch up. We are more apt to compare our condition with that of more favored people than with that of our parents or grandparents.

Thus the pursuit of happiness, if that means getting what we want, may be great sport without being absolutely and completely successful.

However, The Observer got off the track. He wanted to lead up to the new light we may have on the relationship between happiness and prosperity.

The new light may be shed by psychology, which is a long word for an orderly and systematic study of things that have long engaged the attention of men. The chief thing about it is that it adopts a definite terminology whereby, for instance, points in human nature that have long been recognized are given regular and precise names.

Happiness might be described as adaptation between one's hereditary nature and his environment. Since our natures are very hereditary we like to live in the open, we like to fight, and so on. Prominent in our environment are apartment houses and policemen, however, and thus some adaptation is necessary.

Now, if business means adaptation to one's environment and prosperity means constantly putting new things into the environment the eventual advantage seems to be just a trifle in doubt. This is a fact very well recognized by a great many people though most of them would prefer to put it more delicately or in a little different form.

Perhaps this looks pessimistic or at least cynical. Possibly it would be if environment meant everything in the United States, but it really means only the things surrounding the individual, the things with which he is in relation.

For the machinist it means during working hours the size and location of the windows of the shop, and whether or not they are kept clean, the manners of the boss, the amount of variety in the motions that must be made to perform the daily work, and so on.

Are not shop managers studying all these things? That is during working hours. The longer the time during which the man is not working the more opportunity there is for him to select or create the environment his nature craves. Progress means improvements whereby a given quantity of work can be done in less time, giving more time for not working. We have made much progress along that line in the past century. Although men are working to improve these conditions, to increase the adaptation between the worker's nature and his environment by changing the environment, only a bare beginning has been made. There is vast amount of conflict in one respect wherein there should be complete accord. The man's environment is everything with which he is in relation during the whole 24 hours, yet the two classes of effort made, to improve shop conditions and improve out-of-shop conditions, are largely separate. We "improve" machinery whereby the man's work is made "easy" when essentially it is made more unnatural and therefore more tiresome and then encourage gardens, sports and things to enable him to get over the tiredness when it might be less of a job to devise methods of work that would not produce so much tiredness. When the two separate efforts, to improve environment in the shop and environment outside the shop, are brought under one head and considered as a unit, better results will be accomplished.

Spherical Tank for Oil.—The ordinary cylindrical tank will not stand pressure and this new type, spherical, has been designed by the Chicago Bridge & Iron Works, to withstand internal pressures as high as 15 or 20 pounds per square inch. At points in the Gulf, Mid Continent and Wyoming fields these elevated steel spherical tanks are being erected, 48 feet in diameter, for about 8,500 barrels of gasoline.

The design is described and illustrated in **The Iron Age.**

WATER-POWER DEVELOPMENT.

Electrical World prints in large type the following sensible observations:

Inasmuch as water power must be an integral part of any superpower system, it is essential that the general public, and especially state executives, shall have a clear perception of the problem.

So long as there is conflict between state and national authorities over supposed rights infringed or fancied powers usurped, so long will water-power development be stopped and so long will the people be deprived of the benefits accruing from water powers harnessable and utilizable.

To what purpose do the States of New York and New Jersey, for example, seek to restrain the Federal Power Commission from granting permits on navigable streams within their borders? Any development in either State is certainly for the benefit of the citizenry and is subject to the regulation of the State. It is the public which gains, not the Federal Power Commission, because the latter is not a profit-making body. If the venture is unprofitable, the owners and no one else stand the losses. Thus these contentions really withhold from the public something of benefit merely because authorities cannot agree on some minor details of procedure. There is no question as to the desirability of water-power development. On that point State and national governments are in agreement, and it is unfortunate that work of such essentially beneficial character should be held up while lawyers quibble and argue over trifles.

Any system of pooling the power resources of the nation must of necessity be interstate and must be based on a sound economic operating structure. Our present power development stands unrivaled. The men who are responsible for it are the ones who are now working out on an economic basis the power destinies of the country. Superpower is not for novices, but for men of experience and ability. Men possessing both are willing to erect hydro-electric plants which would be a credit to any state or nation. The public wants developments of this kind, and the public can have them if its officials will sanction what both agree is worth while and settle their differences in a way which will not deprive the public of the benefits of constructive work.

STAINLESS STEEL

Stainless steel is fairly well known, stainless iron less so. Next February, at the meeting of the American Institute of Mining and Metallurgical Engineers, J. H. G. Monypenny, chief of the research laboratory of Brown Bayley's Steel Works, Sheffield, will present a paper: "Stainless Steel, with particular reference to the milder varieties (stainless iron."). The paper will give a brief record of a thorough study of the iron-chromuim alloys. **Iron and Steel of Canada** is able to give the following from Mr. Monypenny on the practical importance of stainless iron and its manufacture:

"The important variables from the point of view of corrosion are the chromium and carbon contents. Normal stainless steel contains 11 to 14% chromium; with less than 11% chromium, a notable resistance to corrosion may be obtained if the carbon content and heat treatment are suitably chosen. For example, steel containing 8.6% chromium, after it had been water-quenched from 1,150 deg. C., was quite stainless to vinegar but its mechancial properties in this condition were an effective bar to its use for many purposes.

"In a similar manner, increasing the chromium content to 20 or 30% increases the resistance to general corrosion and minimizes the effects of heterogeneity due, for example, to high carbon content. Such alloys, however, cannot, in general, be hardened and their mechanical properties are not suitable in many cases. For similar reasons and as the cost of the higher chromium alloys is great, the amount of chromium usually found in stainless material lies between 11 and 14%. Steels in this range containing less than about 0.4% carbon are stainless to vinegar when suitably hardened.

"Dealing briefly with its manufacture, stainless iron is produced in the basic-lined electric furnace. Before adding the chromium alloys, the carbon content of the bath should be reduced well below 0.10% and afterwards precautions taken to avoid contamination with carbon, which is greedily absorbed by the molten material. Because of its greater softness, stainless iron forges more easily than the harder varieties of stainless material; it works probably as easily as ordinary steel containing about 0.4% carbon and hence may readily be forged, rolled, or drop stamped.

"Stainless iron does not air harden so intensively as the higher carbon varieties. It does air harden but the degree of hardness produced is considerably less, being generally in the range 280 to 380 Brinell instead of 450 to 550 as obtained with a steel containing 0.3% carbon. Hence it is much safer to work and heat treat than the higher carbon varieties; it is much less liable to develop hardening cracks so that, in general, it may be air cooled after forging without danger. Reasonable care, however, should be taken; for example, forgings should not be thrown on a wet floor or in draughty place. Should any trouble arise, owing for example to intriicate shapes in drop stamping, all danger of cracking may be removed by recharging the hot forgings into a furnace maintained at 650 deg. to 700 deg. C., and allowing them to soak for about one hour after they have attained the furnace temperature. By so doing the carbon change takes place and the forgings, being then in the annealed condition, may be withdrawn from the furnace and air cooled without danger.

"The suitability of any material for engineering purposes is judged, to a large extent, by its mechanical properties and the type of the latter designed depends on the purpose to which the material is to be applied. The results obtainable from stainless iron after oil hardening and then tempering at varying temperatures are illustrated by samples containing respectively 0.07 and 0.10% carbon; the former hardened to approximately 73 tons tensile strength and the latter to 85 tons.

"For general engineering work, where material of about 40 tons tensile strength is required, there is little doubt that stainless iron is the most suitable form of stainless material to use. It drop stamps quite readily and is easily machined. It has been used for such widely diverse purposes as turbine blades, golf clubs, spoons and forks, bonnets and other fittings for motor cars, ornamental firegrates, spurs and many other articles. Because of its low carbon content, its resistance to corrosion is affected less by varying heat treatment than the higher carbon varieties. Thus, in its fully softened condition, it is stainless to the

vinegar test even when the chromium is lower than is customary in stainless material e.g. 10 to 11%.

"The general character of the resistance of stainless iron to various corroding media is similar to that of stainless steel except that it possesses these properties (under similar conditions of treatment, etc.) to an enhanced degree owing to the smaller amount of chromium locked up in the carbide. Speaking generally, stainless material is resistant to water (tap, river, well, or sea water), vinegar, fruit and meat juices, ammonia, solutions of alkalies, alkaline carbonates, and many other equeous solutions of salts. It is practically unaffected by strong nitric acid or nitric acid of specific gravity 1.20 (the strength that attacks ordinary steel most readily); it is, however, very slowly attacked by dilute nitric acid of about normal strength. It is attacked readily by hydrochloric, sulfuric and sulfurous acids. It is practically unaffected by saturated or superheated steam, lubricating oils petrol, benzol, paraffin, greases, etc.; it has therefore a very considerable future before it in engineering work, particularly with regard to hydraulic and steam service work."

IMPORTS OF IRON AND STEEL INTO THE UNITED STATES

Considerable attention is frequently directed to the steel export trade of the United States but not so much thought is given to the import trade. If the trend of steel and iron imports thus far this year is studied, it is found that they exceed any record in ten years. The record to October 1st, this year, compared with previous periods, is as follows in gross tons per month:

1912	15,300
1913	20,400
1920	22,500
1921	7,000
1922	46,600
To October 1, 1923	72,400

The heavier imports in 1922 and in 1923 are due largely to pig iron receipts which have been very large but which are now diminishing. Imports of steel and iron in September were only 36,600 tons or less than the monthly average in 1922 of 46,600 tons. It is probable that, with the lessening in demand for foreign pig iron, the steel import rate will gradually approach the more normal rate of 1912 and 1913 or perhaps 1922.

PERPETUAL APPRAISAL SYSTEM

William R. Basset, president of Miller, Franklin, Basset & Company, contributes the following to the **American Machinist** on the perpetual inventory.

The perpetual inventory of raw and finished stock is now almost universally accepted as essential to the close executive control of any manufacturing business.

The perpetual inventory, or appraisal, of equipment is an almost equally valuable aid to the management, although it has not yet been widely adopted. A physical appraisal, because it is expensive to make, is a comparatively infrequent happening in most concerns. In the four to ten years between appraisals, great changes take place in value and location of the equipment, which, unless reflected in the manufacturing costs and in the income tax returns, may have serious affects upon the prof its.

The best way to gather overhead is by departments. Each department's overhead includes a round sum for depreciation on equipment. If a machine is moved from one department to another, changes in the overhead to reflect that change should be made. Too often it is not. In a concern operating under a cumbersome book-keeping system, I once saw depreciation charged on an expensive machine for years after the machine had been sold for scrap.

In the same plant, one department carried the same amount of depreciation charges after additions had been made which doubled the amount of equipment in that department.

An excellent perpetual appraisal record consists of one card or loose-leaf sheet for each machine. These records can be grouped by departments. On the card is recorded the first cost, the freight, the cost of installing, the cost of major repairs, the depreciation rate and amount, and the present value.

If the machine is moved to anothe department, that fact is noted on the card, and the card is transferred in the file to the new department.

There you have a complete record of every bit of equipment in the plant, by itself, and not buried with a mass of other figures in some general capacity account.

It is easy to operate, and invaluable as a control.

TOPICAL TALKS ON IRON

CXXVII - The Life of Steel

The matter of the life of steel presents some rather interesting points as well as some of practical business importance. The "life" referred to is not the life in the sense of losing its strength from repeated strain, but simply its span of existence in the employment for which it was furnished.

Thus the life of tin plate used for making food containers ends when the can opener is used. The life of the steel rail ends when the rail becomes either a "re-roller" or "heavy melting steel scrap." The life of steel bars used in making agricultural implements ends when through the farmer leaving the implement out Winter after Winter it becomes no longer serviceable.

According to what becomes of it when its natural life is ended steel falls into various categories, as follows:

1. Complete loss.
2. Re-use without rolling.
3. Re-use by individual rolling.
4. Re-use by assembly and rolling.
5. Re-use by melting.
6. Re-use in smelting.

In the first case, complete loss, the cause may be that the material cannot be gotten at or that it would not pay. The wire fence or steel sheet may have disappeared by the atoms of iron having combined with atoms of oxygen, in other words rusting. The nail may be lost in a piece of firewood. The axe or knife may be lost in the woods. More commonly the case is that recovery does not pay. That is true of old tin cans, which weigh little and would require a very expensive process to obtain clean and pure iron. The detinning process is practiced extensively, producing hydraulic compressed scrap, but is practiced only on new tin plate scrap. The entire tonnage of steel completely lost is rather small year by year, though it amounts to millions of tons in the United States from the beginning up to date.

As to re-use without rolling, the most important case from a tonnage standpoint is one that is of no practical interest, the case of relaying rails. The railroad company takes up rails from important track and lays them in unimportant track or sells them for mining, logging and other operations. There is quite a business done in second hand pipe. Shops are in operation straightening pipe, cutting off ends and rethreading. Steel bridges and buildings are often taken down when the steel is in good condition but the structure requires replacement by a larger or better. The bars, shapes, etc., can be used again after cutting, etc. Occasionally a whole building is so used. The main building of the Centennial Exposition at Philadelphia in 1876, made of wrought iron, was set up at Etna, Pa., as the main building of an iron mill.

Under the third head, re-use by individual rolling, come rails, car axles and the like. If in fair condition, old rails can be rolled into slightly lighter sections. This is one case in which there are tonnage statistics. Rerolled rails fell under 100,000 tons in four of the past dozen years, and were at a maximum in 1913, with 155,043 tons. Car axles are rolled into bars, etc. During the war Italy bought large quantities of steel axles in the United States as a substitute for the regular shell steel.

There is much re-use by what the writer, in lack of a better expression, called "assembly and rolling." These are iron mill operations, and originally the material used was wrought iron scrap exclusively. but no little steel is also used nowadays. There are various methods. The generic principle is that instead of individual rolling, considered in the preceding paragraph, a number of pieces are brought to a plastic condition and welded together. An interesting process is heating "piles on boards,' pieces of scrap being piled on boards and charged into the furnace, the pieces becoming stuck together before the board is entirely burned away. Another process is faggoting, long pieces being bound together in bundles. Then there are piles of flat pieces, also "box piles" with little pieces inside the box. In all these cases the material thus stuck together is rolled into "iron bars," the quality of which, as "common iron bars," "refined iron bars," etc., depends on the selection of the original scrap. Most of the wrought iron of recent years has been made from scrap. The biggest year lately was 1917, with 1,867,757 gross tons of "rolled iron" reported as made, largely in merchant bars and skelp. As only 345,707 tons of forge pig iron was re-

ported as made in that year, and a little at least of that pig iron went into foundries, particularly pipe foundries, not much of the wrought iron was made by puddling pig iron. Something similar to the puddling process is used on cast iron scrap, however, and accounts for a portion of the wrought iron.

The fifth head above "re-use by melting" involves by far the largest tonnage now. The melting is in open-hearth furnaces, chiefly basic open-hearth furnaces, which can use almost anything. The choice of scrap is more a matter of expense of conducting the operation than of quality of the steel, since rather good steel can be made from apparently very poor scrap. Impurities in the scrap are the chief objection, galvanized sheets, tin plate, etc., being inadmissible. Light stuff, like borings and turnings, involve loss and take up room, hence command low prices. What is called "heavy melting steel" is the largest market commodity, but the term is also broad. The size may be anything up to the limit of the charging box, say five feet in length, while sometimes boiler punchings will be accepted in small proportions. Usually plates are supported to be not less than quarter inch.

Finally there is what the writer termed for lack of a better expression "re-use by smelting" meaning use in the blast furnace. The individual piece may or may not be "smelted" or reduced from an oxide. Steel turnings are much used in blast furnaces and of course are not oxidized. Burnt iron has oxide on the outside. Much "scale" is used in blast furnaces, but that does not really come within the limits of this talk since it is produced, at the hot rolls, in manufacturing the steel of commerce. It is not steel that has gone through a period of use.

The re-employment of steel becomes more and more a factor year by year by the proportion increasing, the material coming back for reclamation increasing more rapidly than does the manufacture of steel from iron ore. As the iron and steel industry grows older the percentage increase from year to year falls off while the old material, dating back a certain or uncertain number of years, increases more rapidly in keeping with the more rapid growth of the manufacturing industry when it began its life. Perhaps, also, steel does not stay in use as long now as it once did. There used to be a guess that the "average" life of steel was 15 to 20 years. Since those guesses were made the automobile has come, and the most recent estimate of its life was about 6.7 years.

British Pig Iron and Steel Output on a Large Scale Compared With Other Years

The production of both pig iron and steel in Great Britain in October was considerably larger than in September although not equal to the best records of the year thus far. Pig iron output in October was 592,500 gross tons, comparing with 558,600 tons in September and with 714,200 tons in May, the largest this year. Steel ingots and castings made in October were 702,100 tons which compares with 695,100 tons in September and with 821,000 tons in May, the year's peak.

Taking the average output per month of both pig iron and steel for the first ten months of this year and comparing this with the record of previous peacetime years, we have the following table in gross tons per month;

	Pig Iron	Steel Ingots and Castings
1913	855,000	639,600
1920	669,500	755,600
1921	218,000	308,600
1922	408,500	490,100
To Nov. 1, 1923	621,030	708,600

These figures show that to Nov. 1st, this year, pig iron output of 621,030 tons per month easily exceeds the 1921 and 1922 records but does not equal the rates of production in 1920 or 1913. It is doubtful if the 1913 pig iron record of 855,000 tons per month will be equalled again in many years. The steel rate of 708,600 tons per month to November 1st, while greatly exceeding the record in the past two years, is larger than the 1913 rate but smaller than the 1920.

On the whole, the year 1923 promises to be a fairly excellent one for the British steel industry.

TECHNICAL AND COMMERCIAL ABSTRACTS

Carrying Ore by Airplane.—A careful and detailed estimate indicates that ore can be carried by airplane at a cost of about $11.00 for a distance of 20 miles (to a railroad of course) or 55 cents per ton-mile. The whole subject is considered very carefully in a six-page article contributed by Adrian Van Muffling to the **Engineering and Mining Journal-Press.**

ECONOMICS AND PUBLIC AFFAIRS

New Alliance Proposed.—In his address as president of the National Founders' Association at the annual convention November 21st, William H. Barr proposed an alliance between manufacturers, farmers, bankers and railroad executives. There is manifest an increasing acceptance of the principle of open shop operation. Governor Pinchot's settlement of the anthracite controversy strengthened the union and increased the price of coal. The settlement was as unwarranted as uneconomic. We should as citizens banish the idea that the government is remote. It should be called "our Government.'

Extravagant building costs are brought about by the brigandage of the building trades unions. The possibility of cheaper railroad transportation is again jeopardized by recent demands of the brotherhoods for wage increases, which if granted would put them back on the unjustified and profligate scale of governmental wartime operation. It is generally understood that the radicals in the new Congress will make a drive against the Esch-Cummins Act and to substitute untried theories of men antagonistic to the private operation of railroads. The present tendency is to legislate rather than enforce. The industrial worker assumes no risk and receives his money immediately. The farmer must take chances and wait. Abnormal union wages, short hours and retarded production have demoralized agricultural labor. The farmer therefore has a natural alliance with the manufacturer.

Railway Employes and Government Ownership.—Most of the railway labor leaders are in favor of Government ownership and many railway employees—nobody knows how large a part of them, and **Railway Age** proceeds to ask why.

The editor thinks it is because wages were advanced under Government control in 1918 and 1919, but he points out that the greatest advance was made in 1920, when the roads were under private control, and suggests that the whole idea is "a hallucination." He supports his claim pretty well, pointing out that before the war, under private management, American roads paid higher wages than were paid by Government controlled roads in any country in the world.

Also, that railway wages in the United States under private management have always been higher than wages paid by the Government of the United States, citing the National Industrial Conference Board report that the average wage of all Government employes, local, state and federal, is $1,296, while the average railway wage now is $1,643, aimost 27% more. The editor concludes by saying there is no mystery why many railway employees want Government ownership.

It is because they follow their leaders "without looking up facts or thinking for themselves."

"Property Rights" and "Confiscation."—A government can take men from their families and their business and send them to the front to be cannon fodder; a government can prevent a man who has money from charging for the loan of it more than a certain per cent; the state can step in and forbid a man from charging more than so much rent for a house; when an industry profits by the low-priced labor of children a government can step in and forbid employment of child labor; the products of a great industry can be declared detrimental and the industry can be put out of business by prohibition. F. R. Low, writing in **Power**, says he has no quarrel with such restrictions; "But I am at a loss to square some of these regulations with the solicitude of those who make and interpret our laws for other forms of property rights and vested interests, which manipulation or a fortuitous development of circumstances has enabled their holders to exploit to just as obvious a violation of the public welfare. A government that can make

a law that would send an old woman to jail for giving a friend a bottle of home made wine need have no compunction about making a law that would send men to prison for extortion through the control of national resources, processes of production or the avenues of distribution."

Obedience to Law.—Richard H. Edmonds, delivered an address on this subject before the Maryland Baptist Union Association, and extracts are published in the **Manufacturers Record,** of which Mr. Edmonds is editor. He declares we as a free people are in danger of suicide as we have been growing to be a lawless people. He mentions lynchings as bad but the acts of "hooded and disguised men" as worse. Even prohibition is not the supreme question before the country. The greatest danger "comes from men of affairs, men of wealth and of social position, some of whom even are members of Christian churches; men who have most at stake; men who claim to be patriots, but who deliberately make light of every law which it does not suit their convenience to obey. They are, as Lincoln suggested in his day, leading us toward national suicide."

The Big Public Payroll.—Commenting on the recent finding of the National Industrial Conference Board that one out of every 12 persons over 16 years of age in the United States and gainfully employed is on the public payroll the **American Machinist** comments briefly and pointedly: "Things are certainly getting more and more complicated in this hurrying civilizaton of ours and among them is government. The question is whether or not we ought to spend so much to govern ourselves. In a modern factory overhead is not allowed to rise unless total unit costs are lowered to an even greater extent. In other words, additional management complications are only justified if they more than pay their way. Is this the case with government complications and overhead or are we just getting a little nearer to the state of taking in each other's washing?"

Renaissance of the South.—"In my opinion the South is standing on the threshold of a tremendous industrial and economic renaissance. She is about to enter into a long deferred heritage of progress and prosperity."

Thus writes C. H. Markham, president of the Illinois Central Railroad. The **Manufacturers Record** brings this and other opinions together. Reference is made to a letter from G. L. Miller of Atlanta and New York City, whose house advertises mortgage bonds for sale, based on southern property, and who refers to "the wonderful section of the country below Mason and Dixon's line."

BUSINESSS AND MANAGEMENT

Keeping the Plant Fit.—It is very good to concentrate on production, **Industrial Management** points out, but the management should also concentrate on maintenance. "Keep fit" is a popular and profitable slogan. Like the human body, the average industrial plant is a complicated machine, and must be kept fit.

Autocratic Management Passed.—The day of autocratic management in a factory has passed. The plant in which a single all-wise head directs, checks and urges, while department heads concentrate solely on the problems of their own divisions, is no longer the most efficient. Every department head should have a clear vision of the chief aim of the business as a whole, and thus be able to conduct his specific activities so that they contribute directly to the general purpose. These, according to a review in **Automotive Industries,** were the basic ideas developed by R. H. Grant, general manager of the Delco Light Company in a dinner address at the second annual production meeting of the Society of Automotive Engineers.

General Electric Company.—No two lines of manufacture could be much farther apart than the building of automobiles and the making of the products of the General Electric Company. The automobile factory has one product, the automobile, and can go in strong for standardization.

The electric industry, on the other hand, is very far removed from a state of standardization, as John H. Van Deventer points out, introductory to an extensive article, in **Industrial Management,** on the work of the General Electric Company. There is nothing common, except that they are electrical, be-

tween flat irons and foot-lights, lightning arresters and locomotives. Graphs show the growth of the company, from less than 15,000 employes in 1900 to over 35,000 in 1910 and over 70,000 in 1922, while less than three million square feet of floor space in 1900 grew to over 25 million in 1922. It will surprise many to know that there are 17 works.

Schenectady, which one thinks of in connection with General Electric, employs 19,945, but the River works at West Lynn, Mass., employ 9,665 and the West Lynn works at the same place engage 2,345, Pittsfield, Mass., has 6,585, Erie, Pa., 6,235 and Fort Wayne, Ind., 4,815.

Creating Desire to Work.—After all, says **Industrial Management,** the greatest problem confronting the management of any plant, mill or factory is creating the desire to work. Turnover would be lowered a great deal of effort could be turned to other channels than getting and training men.

There are three subconscious elements, ventilation, light and noise.

Consciously, workmen demand six major things: Fair wages, harmonious surroundings, security of position, possibility of advancement, scope for self-expression and inspiring leadership.

COAL AND POWER

Steam Engine and Turbine.—It was only a few years ago that the advent of the steam turbine dealt a blow to the reciprocating steam engine, which has since been on the defensive, although the advent of the unaflow type has given somewhat of a new lease of life.

There is but little hope of increasing the mechanical efficiency of the steam engine, remarks **Power** editorially. The drawback lies in inability to use low vacuum, but the reciprocating engine has a broad field where load conditions are unsuited to the turbine, as in rolling mills with their large starting torque.

Do Strikes Pay?—Some simple but impressive figures are cited by **Coal Age** suggestive that strikes pay. There was the five months' coal strike of 1922, yet production of bituminous coal was 6,000,000 tons greater in 1922 than in 1921, while the average number of days worked, the country over, was 149 in 1921 and 142 in 1922, and with more coal and fewer days the number of men employed would increase. The increase was from 663,700 in 1921 to 687,900 in 1922.

Comparing 1922 with 1921, Illinois lost 11,000,000 tons in coal output, but Kentucky gained 10,000,000 tons; Ohio lost 5,000,000 tons but West Virginia gained 8,000,000 tons, and so on. The coal journal goes on to remark: "It is perhaps surprising that all the furore of the big strike of 1922 had no greater influence in price than is shown by the figures for average realization published by the Geological Survey. The average value per ton of all bituminous coal at the mine in 1922 was $3.02, a gain of 13 cents over 1921. Thus the big strike brought more mine workers by the thousands into the soft coal industry, all in the nonunion fields, where the expansion was possible."

Large Plants Also Waste Coal.—Small plants are not the only offenders in consuming coal extravagantly, remarks **Power** in an editorial, and cites the case of a power station that had been burning 50,000 tons of coal a year but by rebuilding the coal consumption was reduced by more than 50%, while the labor by 75% for the same output.

Reference is made to a technical paper in the same issue of the magazine, giving the astonishing story of a plant which reformed its operation and saved $300,000 a year, with an initial investment of $50,000, so that $250,000 was saved the first year. This was at the Lukens Steel Company. The paper was read by the company's combustion engineer before the Philadelphia section of the Association of Iron and Steel Electrical Engineers.

Superpower in Ohio.—Important progress has been made in Ohio this year in developing large steam power central electric generating stations and in extending interconnecting high tension transmission lines, providing a network of lines that supply current for power and lighting for a large share of the industrial centers of the state, notes **The Iron Age** in a brief review of the activity. Earlier this year companies engaged in this development started a building program involving expenditure of $100,000,000, and the entire amount will have been expended by March 1,

1924. At present the network of power transmission lines cover practically all of the northern and eastern Ohio and a portion of the southwestern portion of the state. Power generated at Windsor on the West Virginia side of the Ohio river is carried through Canton as far north as Akron, where there is connection with similar lines from a plant in Cleveland, and there are various other lines.

Hydroelectric Development in the South.—There is between one and two per cent of the total potential water power in the United States, without storage, in each of the following seven Southern Appalachian states Virginia, North Carolina, South Carolina, Georgia, West Virginia Tennessee and Alabama, and from 6 to 9% each, when comparison is made only with water power east of the Mississippi, according to an article by Joseph Hyde Pratt in the **Manufacturers Record.** The major part of this is already developed, about 450,000 h.p. in each of the Carolinas, 342,000 h.p. in Georgia, and over 600,000 h.p. in West Virginia, Tennessee and Alabama combined. The total output from electric generating stations in the Southern Appalachian states, by water power, was more than 3,000,000 kilowatt hours in

THE RAILROADS

Automatic Train Control—The Missouri Pacific is one of the 49 railroads required to establish automatic train control on one full passenger division by the end of 1924. Its system is described in the Missouri Pacific Magazine for October, abstracted by the **Railway Review.**

The requirement of the I. C. C. is that the system shall do either or both of the following: (1) Stop the train by applying brakes; (2) Apply brakes when speed exceeds a prescribed rate. Train control systems, doing either of these, are classified as continuous and intermittent. Continuous involves control of the brakes all along the track and applies brakes instantly when the stop indication is given. Intermittent involves apparatus at the entrance of each block, applying the action when the train reaches the point. In making a selection, one must face the details of everyday operation of trains. Thus there are certain places where it is better to stop a train, not on a trestle or a ruling grade for instance. The Missouri Pacific accordingly adopted the intermittent type as opposed to the continuous, and the automatic stop type in contrast with the speed control. The stretch of the track is about 140 miles, from Kansas City to Council Grove.

The Recapture Clause.—Only about $100,000 has thus far been paid to the I. C. C. under the so-called "recapture clause" of the Transportation Act, this being by small roads. Unfortunately the most roads the question does not come up, as they do not earn even the 5¾% intended in fixing rates. The clause requires that earnings over 6% on valuation be turned in. The roads withholding payments question the constitutionality of the clause and also point out that valuation is not yet determined.

Railway Review points out editorially that in addition there are in paragraphs 7 to 16 inclusive " a multitude of points, many of which will run afoul of previous notions as to the rights of private property."

Railroads in the New Congress.—Remarks **Railway Review** editorially:

"This year we witness a lull, and let us hope an ultimate development of the bloc system. It is a bloc system without control, manual or otherwise. It is a bloc system on a single track road, designed not for safety, but to bring about head-on collisions, and intended not to increase the traffic capacity, but to limit it to the smallest proportions. The old parties size up, in the House, about 223 Republicans to 206 Democrats, and in the Senate, only about six majority for the Republicans." Thus the blocs will be powerful, using obstructive tactics not for defensive, as usually, but for offensive purposes.

One of the unusual situations is the incumbency of Senator Cummins as chairman of the Committee on Interstate Commerce and his eligibility as president of the Senate through the disappearance of Mr. Coolidge. The significance is that Senator LaFollette, by reason of the seniority rule, which is virtually unwritten law in the Senate, is next in line for the chairmanship of the Committee on Interstate Commerce.

Enough said.

The Reduced Freight Bill.—The Bureau of Railway Economics is quoted by the Washington correspondent of the **Railway Review** as stating that on account of voluntary reductions in freight rates and reductions ordered by the Interstate Commerce Commission the freight bill of the country in the first 8 months of 1823 was $282,750,000 less than it would have been had the rates of the same period in 1922 been in effect, and $431,000,000 less than if the rates of the same period in 1921 been ruling.

Henry Ford's Railroad.—The Detroit, Toledo & Ironton is making a much more favorable showing than in any previous year since Mr. Ford acquired it, remarks **Railway Age** editorially, net railway operating income for nine months being $1,506,959, against only $5,650 in the same months of last year. Operating revenue increased moderately and operating expenses decreased considerably despite the increased traffic. There are considerable arrears in bond interest to be met before there will be anything available for dividends.

IRON AND STEEL

Gun Factory Making Letter Boxes.—On account of the treaty limiting naval armament, the Navy Department found itself in the position of having little work to do yet with a personnel it was very desirous to retain against emergencies. As Government manufacturing plants are forbidden by law to enter commercial fields it was decided that work should be done for other Government departments. An article in **The Iron Age** how the naval gun factory at Washington first makes tools for producing letter boxes and then makes the boxes. Sheet metal is cut up by special shears and equipment formerly used in making ammunition containers.

Steel for Corsets.—Over 100 tons a day of steel is used in making corsets, according to an article in the **Iron Trade Review.** The steel is called "wire" and is usually less than ½ inch wide and less than 1/32 inch thick, being cold rolled and finely tempered. About 20,000 dozen corsets are manufactured daily.

Eight-hour Day in Steel.—Kent Harrison, superintendent of the openhearth department of the Donner Steel Company, writes an article for **The Iron Age** (November 15th) on "How to succeed with the eight-hour day." There must be absolute confidence betweeen employees and management. Some years ago Mr. Harrison took charge of an open-hearth department where the record production had been 16,000 tons for six furnaces in a month. The manager said the men were no good and better men would have to be secured, but afterwards these same men doubled that production. At the Donner Steel Company, the change from 12 to eight hours was worked out in advance, the men being asked to appoint a committee of their own to represent the open-hearth department. It was represented that the company desired to maintain wages but would have to have harder work per hour, and that it would be better for the men to work harder and then have more time outside the mill. The entire change was made with an increase of 8% in men and a saving of 580 man hours, thus making a very small increase in the payroll and keeping wages at the old rate per day.

Iron Mountain Resumes Production.—The famous Iron Mountain, in the St. Louis district, was opened by the American Iron Mountain Company in 1845 and produced altogether about 4,000,000 tons of iron ore, the peak year being 1869, with 269,000 tons. When the iron ores of Western Pennsylvania began to fail, Iron Mountain ore was brought up the river in barges to the Carnegie blast furnace at Pittsburgh, coke being taken down on the return trip. Then came Lake Superior ores. The company's charter expired in 1919. **The Blast Furnace and Steel Plant,** in an extensive description of the National Enameling & Stamping Company's activities, describes the resumption of activities.

Leonard A. Busby of Chicago renewed the company's charter in 1920, found that milling was essential for a uniform product, and built a 2,000-ton mill, now in operation.

Engineers estimate that there is 2,000,000 tons of ore in the big cut on top of the mountain.

COMPARISON OF METAL PRICES

	Range for 1921.		Range for 1922.		Range for 1923.		Closing Nov. 30,
Pig Iron.	High.	Low.	High.	Low.	High.	Low.	1923.
Bessemer, valley	32.00	20.00	33.50	19.00	31.00	23.00	23.00
Basic, valley	30.00	18.00	30.50	17.75	31.00	20.00	21.00
No. 2 foundry, valley	33.00	19.50	35.50	18.75	31.00	21.00	22.00
No. 2X fdy. Philadelphia	33.79	19.84	34.76	21.34	33.16	21.76	24.14
No. 2 foundry, Cleveland	33.56	20.56	35.50	19.56	32.50	22.50	22.50
No. 2X foundry, Buffalo	31.25	19.00	34.25	19.50	30.25	19.50	20.50
No. 2 foundry, Chicago	33.00	18.00	33.00	18.50	32.61	22.61	23.61
No. 2 Southern, Birm.	34.00	16.50	28.00	15.00	27.00	19.00	20.00
Scrap Iron and Steel.							
Melting Steel, Pittsburgh	17.00	12.75	22.00	14.00	27.00	15.00	17.75
Heavy steel scrap, Phila.	16.00	10.00	19.00	11.00	26.50	15.00	15.75
Heavy melting steel, Chi.	16.50	10.00	19.00	11.00	24.50	13.00	15.00
No. 1 cast, Pittsburgh	22.50	15.00	25.00	16.00	27.50	18.00	19.25
Iron and Steel Products.							
Bessemer rails, mill	45.00	40.00	43.00	40.00	43.00	43.00	43.00
Iron bars, Pittsburgh	3.06	1.85	2.55	1.80	2.82	2.35	2.70
Iron bars, Philadelphia	3.85	1.80	2.58	1.70	2.82	2.32	2.67
Steel bars, Pittsburgh	2.35	1.50	2.25	1.35	2.40	2.00	2.40
Tank plate, Pittsburgh	2.65	1.50	2.50	1.35	2.50	2.00	2.50
Structural shapes, Pitts.	2.45	1.50	2.25	1.35	2.50	2.00	2.50
Grooved steel skelp, Pitts.	2.45	1.50	2.10	1.40	2.50	2.00	2.40
Black sheets, Pittsburgh.	4.35	2.75	3.75	3.00	4.00	3.35	3.75
Galvanized sheets, Pittsb.	5.70	3.75	4.75	4.00	5.50	4.35	5.00
Tin plate, Pittsburgh	7.00	4.75	4.75	4.60	6.00	4.75	5.50
Wire nails, Pittsburgh	3.25	2.50	2.70	2.40	3.00	2.70	3.00
Steel pipe, Pittsburgh	57½%	71%	66%	71%	62%	66%	62%
Connellsville Coke at Ovens.							
Prompt furnace	5.00	2.75	15.00	3.75	9.00	3.75	3.75
Prompt foundry	7.00	3.75	16.00	3.75	9.50	5.00	5.25
Metals — New York.							
Straits tin	65.00	32.50	39.00	25.50	51.50	37.50	47.25
Lake Copper	20.50	13.75	14.00	12.00	17.50	13.00	13.25
Electrolytic copper	19.50	12.75	13.75	11.50	17.25	12.45	12.95
Casting copper	19.25	12.75	13.00	11.25	16.87½	12.25	12.87½
Sheet copper	29.50	22.50	21.50	19.50	25.50	19.25	21.00
Lead (A. S. & R. Co. price)	9.25	4.75	5.00	4.00	8.25	6.00	6.85
Zinc (spelter)	9.85	6.00	6.10	4.25	8.35	6.00	6.72½
Chinese and Japanese Ant.	11.62½	5.20	6.00	4.45	9.25	6.25	8.80
Aluminum, 98-99%	32.75	22.00	26.00	17.00	26.50	22.50	26.25
Silver	137	59¼	73⅝	52⅝	73¾	62.25	64.37½
St. Louis.							
Lead *	9.15	4.45	5.05	3.90	8.50	5.67½	6.80
Zinc (spelter)	9.50	5.50	5.60	4.12½	8.00	5.75	6.37½
Sheet zinc (f.o.b. smelter)	12.50	11.50	11.50	8.50	10.00	8.90	9.25
London.	£	£	£	£	£	£	£
Standard tin prompts	415½	198	210½	148	236¾	176⅛	236½
Standard copper, prompts	122	70½	75½	65¼	76¼	59¼	62¼
Lead	52⅜	21½	26	16½	31½	23¾	31
Zinc (spelter)	63	22½	28¼	23½	39⅛	27⅝	33

* Outside market.

COMPARISON OF SECURITY PRICES

Iron and Industrial Stocks.	Range. 1920. High.	Low.	Range. 1921. High.	Low.	Range. 1922. High.	Low.	Range. 1923. High.	Low.	Closing Nov. 30, 1923.
Allis-Chalmers.....	53⅞	26½	39¾	28¼	59¾	37¾	51¼	37¾	41⅝
American Can	61¾	21¾	35½	23½	76½	32⅛	106	73½	103⅛
American Car & Fdy...	147⅜	111	151	115¼	201	141	189	148¼	109⅜
American Loco. (new)	....	....	....	....	....	....	75¼	64¾	73½
American Smelt. & Rfg.	72	29¼	47¼	29⅝	67½	43⅝	69½	51¼	58⅝
Am. Steel Found., new.	50	26	35	18	46⅛	30¾	40⅞	31⅜	38½
Anaconda Copper	66½	30	50¾	31¾	57	45	53½	32⅜	38
Baldwin Loco	148½	78	100⅜	62¼	142¾	92¾	144¼	110½	125⅜
Bethlehem Steel.....	....	....	....	....	79	51	70	41¾	52¾
Butte & Superior	29¼	8	22⅛	10	35¼	20⅜	37⅜	12⅞	15⅝
Cerro de Pasco	61⅜	24¼	36½	23	46⅜	32⅞	50½	36½	42⅞
Chile Copper	21¼	7¾	16⅞	9	29¼	15⅛	30⅝	24⅛	27¼
Chino Copper	41⅝	16⅜	29½	19½	33⅜	22¼	31⅞	14¾	16½
Colo. Fuel & Iron	44¼	22	32¾	22	37⅜	24	35⅜	20	23
Crucible Steel	278½	70	107½	49	98⅜	52¾	84½	57½	65¾
General Electric	172	116½	143¾	109½	190	136	190	167⅝	181½
General Motors	42	10¾	16¼	9⅜	15¼	8⅛	17½	12¾	13⅞
Granby Con.	55½	15	34½	15	35	22	33	12	14½
Great Northern Ore ...	41⅝	24⅞	35⅜	25⅝	45⅝	28⅞	36	25	32½
Gulf States Steel	84⅞	25	50⅞	25	94⅞	44⅞	104⅝	65¼	82⅛
Inspiration Copper	61⅞	28	42¼	29⅝	45	31	43¾	23¼	25½
International Harvester	142½	88	100½	67⅝	115⅞	79⅜	98½	66¾	77
International Nickel...	26¾	11⅛	17	11½	19¾	11¼	16¼	10⅜	11¼
Kennecott Copper	33½	14⅝	27⅞	16	39⅝	25½	45	29⅜	35
Midvale Steel	52¾	29½	33½	22	45½	26	33⅜	21½	28½
National Enam. & Stg..	89½	43¾	66	26	68½	30¾	73	33⅝	39⅞
National Lead	93¼	63½	87	67¾	129¼	85	136¾	108	123¼
N. Y. Air Brake.....	....	....	....	....	41⅝	24½	42⅞	26⅝	41¼
Pressed Steel Car	113⅞	72½	96	48	95¼	63	81½	42½	55
Railway Steel Spring ..	106½	73	99½	67	126¼	94	123	99½	109½
Ray Consolidated	22¾	10	15⅞	11	19	12⅛	17¼	9⅞	12⅛
Republic Iron & Steel.	124¾	55¼	73½	41	78½	43½	66¼	40⅛	48⅞
Sloss-Sheffield	82¼	43	56	32⅛	54½	34½	60	39¼	53⅞
U. S. Cast Iron Pipe	25½	10½	19	11½	39	16⅛	58½	20	58
U. S. Smelt., Rfg. & M.	76	29½	39⅜	26	45¾	32¾	43⅜	18⅜	22
U. S. Steel Corporation	109	76¼	86½	70	111½	82	109⅝	85½	94½
U. S. Steel Corp. pfd.....	115¾	104⅛	115	105	123	114¼	123½	116⅛	118⅞
Utah Copper	80¾	44⅛	63⅜	41⅛	71½	59	76½	55½	64
Westinghouse Electric.	55⅛	40	52¼	38⅞	65⅞	49⅛	67⅛	52½	59

BUSINESS TRENDS

OCTOBER FOREIGN TRADE ANALYSIS.

One or two facts of decided interest are revealed by the analysis of our October imports and exports made public by the Department of Commerce. The figures are presented in the following table (000 omitted):

Groups:	Month of October	
Imports	1922	1923
Crude materials for use in manufacturing ...	$137,652	$92,451
Foodstuffs, crude and food animals	37,464	34,057
Foodstuffs, partly or wholly manufactured	30,289	48,067
Manuafctures for further use in manufg...	65,674	57,503
Manufactures ready for consumption	71,746	73,554
Miscellaneous	2,279	2,734
Total imports	$345,024	$308,366
Exports		
Crude materials for use in manufacturing ...	$133,700	$151,098
Foodstuffs, crude and food animals	40,798	21,750
Foodstuffs, partly or wholly manufactured	47,921	50,969
Manufactures for further use in manufg...	32,940	45,977
Manufactures ready for consumption	110,119	123,447
Miscellaneous	637	573
Total domestic exp..	$366,186	$393,814
Foreign exports	4,553	7,000
Total exports	$370,719	$400,823

Outstanding is the fact that as compared with October of last year our receipts of raw materials were decidedly down, a development which reflects the failure of business to continue to "boom," as many had mistakenly hoped. The volume of raw materials indicated by the October, 1923, returns is sufficiently large to indicate reasonably active industry in this country, particularly when the probability that manufacturers laid in considerable stocks during the past Winter and early Summer is borne in mind.

The increase in exports of raw materials reflects, without question, our large shipments of raw cotton at high prices. Our foreign sales of finished and semifinished manufactured goods appear from the table to be on the upgrade. If this indicates a continued and relatively permanent improvement it is by far the most encouraging fact revealed.

PRICE INDEX NUMBERS GO HIGHER IN NOVEMBER

Bradstreet's Index Number of Commodity Prices as of December 1st was $13.4358. This marks a gain of 2.2% over the number recorded on November 1st and is the highest number reached since May 1st this year. Compared with the low point of the year touched on August 1st, the gain is 4.8%, but compared with December 1st last year there is a decrease shown of 2.5%. From the low point reached on the depression of 1920-21 on June 1, 1921, the present number marks a gain of 26%, but it is 35.6% below the high point of February 1, 1920, though 54.3% above the pre-war level of August 1, 1914.

FEWER FAILURES THAN A YEAR AGO

The total number of failures reported to Bradstreet's for November was 1,644, an increase of 2.2% over October, but a decrease of 6.6% from November last year, and of 16.5% from November, 1921. Liabilities for November were $67,536,188, a decrease of 10.1% from October, but an increase of 24.5% over November last year, although a decrease of 7.1% from November, 1921.

Evidences of improvement in conditions which occurred this year, as compared with last year or with 1921 is found in the failures and liabilities returns for 11 months' period. There have been 17,292 failures with liabilities of $549,542,816 this year for ten months, a decrease of 16% in number and of 8.8% in liabilities from last year, and 1.6% in number and of 18.5% in liabilities from the ten months' period of 1921.

Following are the failures, assets and liabilities monthly since January, 1923:

1923	Number	Assets	Liabilities
Jan.	2,203	$28,244,270	$53,597,775
Feb.	1,563	18,845,274	38,145,532
Mar.	1,677	32,035,272	60,617,408
April ...	1,637	31,290,039	52,056,267
May	1,470	15,385,783	30,905,711
June	1,366	35,086,046	51,714,436
July	1,405	20,362,083	40,220,398
Aug.	1,440	27,823,651	48,748,849
Sept	1.279	15,738,952	30,831,117
Oct.	1,608	49,713,033	75,169,135
Nov.	1,644	44,012,586	67,536,188

BUSINESS TRENDS

MANY NEW ENTERPRISES.

During November 962 new companies were organized under the laws of the different States with an authorized capital of $100,000 or over, representing a combined total of $811,848,599. In the same period a year ago 761 concerns were incorporated with a combined authorized capital of $808,719,600. During October of this year 756 new companies took out charters amounting to $704,000,000. The latest returns indicate that domestic developments in a general way are along constructive lines and that the business outlook, in the opinion of bankers and other close observers, is encouraging.

Since January 1st 8,397 new enterprises have been formed with a combined authorized capital of $7,415,105,719. In the first eleven months of 1922 8,685 charters were filed, involving $7,586,252,390. During the corresponding period of 1921 8,744 new companies were organized with a total authorized capital of $7,130,478,100.

The following are the comparative figures as compiled by **The Journal of Commerce** of companies incorporated in the States with authorized capital of $100,000 or over.

	1923	1922
January	$909,693,800	$ 843,652,900
February ...	700,708,300	591,404,300
March	500,819,000	731,866,000
April	1,006,258,300	792,372,000
May	817,229,500	938,195,000
June	1,403,336,220	297,557,000
July	724,920,000	634,259,200
August	335,462,000	646,605,000
September ..	500,830,000	650,044,000
October	704,000,000	651,577,390
November ...	811,848,599	808,719,600
December ...	.....	813,901,000
Total	.....	8,400,153,390

CAR SHORTAGE DISAPPEARING.

Owing to usual seasonal decline in demand for transportation, surplus freight cars show a constant increase, while there is practically no car shortage, according to American Railway Association. On November 22nd the railroads had 111,797 surplus freight cars in good repair, an increase of 40,678 since November 14th; while car shortage totaled only 1,866, a decrease of 2,035.

Of total surplus, 43,645 were box cars, an increase of 9,196 since November 14th; 58,490 coal cars, increase of 26,640; 5,148 stock cars, increase of 2,345; 2,044 refrigerator cars, increase of 1,840.

Box car shortage totaled 543, a decrease of 378; coal car shortage 907, a decline of 262; shortage of stock and refrigerator cars had practically disappeared.

QUIET CONFIDENCE IN BUSINESS JUSTIFIED.

Charles M. Schwab, asked by The Wall Street Journal for an opinion on the industrial outlook, said: "Any structure can best be judged by its foundation. And business conditions in this country are on the firmest basis they have been in years. No justifiable grounds for fear exist.

"Through the noteworthy efforts of Secretary Mellon we have been enabled to cut down our national expenditures to a considerable extent. If his plan for tax reduction is allowed to go through, this country should continue on its prosperous way with even greater fervor than in the past.

"We have only to compare financial and industrial conditions in this country with those throughout the rest of the world to obtain an adequate idea of how well off we are."

Although pessimism is encountered here and there, a careful review of credit facilities and of the production and distribution of commodities give no occasion for fear, and throughout the country there should be a feeling of quiet confidence, according to the December Monthly Letter of Secretary-Treasurer J. H. Tregoe, to the wholesale, manufacturing and banking houses that make up the membership of the National Association of Credit Men.

In support of this belief, Mr. Tregoe calls attention to (a) the narrowing of the spread between the price of farm products and the price of other commodities, (b) the decrease of unemployment, (c) the fact that construction is reaching high totals, (d) the apparent upward swing of buying in the railroad equipment field, (e) the continued high car-loadings, (f) the high level of bank clearings, and (g) the satisfactory totals reported by mail order houses, department stores, and chain stores.

IRON AND STEEL EXPORTS IN OCTOBER AND TEN MONTHS OF 1923

(As reported by the Department of Commerce)

(In Gross Tons)

	— October —		Ten Months Ended October	
	1922	1923	1922	1923
Pig iron	1,553	3,294	24,320	26,370
Ferromanganese	5	1,019	1,059	4,284
Ferrosilicon	78	76	444	635
Scrap	4,510	5,186	59,813	54,400
Ingots, blooms, billets, sheet bar, skelp	8,364	10,989	91,595	98,956
Bar iron*	....	511	.....	11,825
Steel bars*	9,659	12,224	148,416	134,950
Alloy steel bars	292	96	3,698	2,038
Wire rods	1,180	2,453	37,696	26,372
Plates, iron and steel	4,303	10,022	81,286	102,624
Sheets, galvanized	7,520	8,030	96,219	99,581
Sheets, black steel	6,256	7,858	204,144	85,273
Sheets, black iron	452	1,384	9,971	12,737
Hoops, bands, strip steel	2,969	3,493	27,928	33,350
Tin plate, terne plate, etc.	6,324	11,785	66,226	92,209
Structural shapes, plain material	11,151	5,871	107,847	106,885
Structural material, fabricated	3,596	6,264	38,731	66,073
Steel rails	20,202	21,122	240,674	218,944
Rail fastenings, switches, frogs, etc.	3,747	3,044	30,730	33,056
Boiler tubes, welded pipe and fittings	15,000	14,604	148,526	157,889
Cast iron pipe and fittings	2,629	2,797	22,117	23,677
Plain wire	8,894	6,052	100,306	76,234
Barbed wire and woven wire fencing	6,711	4,055	63,222	62,252
Wire cloth and screening	128	146	1,273	1,727
Wire rope and cable	512	364	3,959	5,422
Wire nails	2,131	3,370	48,967	32,548
All other nails and tacks	531	806	7,173	7,554
Horseshoes	72	71	803	773
Bolts, nuts, rivets and washers, except track	1,888	1,825	15,158	16,059
Car wheels and axles	1,238	2,235	13,868	17,647
Iron castings	706	993	8,247	8,646
Steel castings	193	304	1,906	4,183
Forgings	114	168	1,840	2,622
Machine screws	16	....	161	.....
Total	132,924	152,511	1,708,323	1,628,005

* Not reported separately, prior to September 22, 1922.

Exports, January, 1922, to October, 1923, Inclusive (In Gross tons).

	All Iron and Steel.	Pig Iron.	Semifinished Material.
*Average, 1912 to 1914	2,406,218	221,582	145,720
*Average, 1915 to 1918	5,295,333	438,462	1,468,026
Calendar year 1919	4,239,837	309,682	258,907
Fiscal year 1920	4,212,732	248,126	288,766
Calendar year 1920	4,961,851	217,958	216,873
Fiscal year 1921	4,168,619	129,541	82,549
Calendar year 1921	2,213,042	28,305	10,363
January, 1922	160,920	1,043	4,683
February	133,975	1,430	6,627
March	208,843	2,724	10,002
April	198,830	2,750	9,376
May	230,062	3,897	13,091
June	212,295	1,996	13,178

IRON AND STEEL EXPORTS IN OCTOBER AND TEN MONTHS OF 1923

(CONTINUED)

Exports January 1922 to October 1923 Inclusive (In Gross tons).

	All iron and Steel.	Pig Iron.	Semifinished Material.
Fiscal year 1922	1,721,418	28,330	63,127
July	157,169	1,943	10,149
August	145,640	1,791	9,353
September	129,475	5,203	6,810
October	132,924	1,553	8,364
November	127,782	3,464	7,157
December	150,170	3,136	8,449
Calendar year 1922	1,986,297	30,922	107,201
January, 1923	123,190	2,482	10,563
February	133,902	2,786	7,733
March	163,920	2,881	11,416
April	177,471	1,844	11,247
May	203,389	1,848	12,824
June	171,183	2,960	9,652
Fiscal year 1923	1,815,329	31,891	113,377
July	168,558	2,966	6,480
August	161,426	3,117	9,684
September	172,499	2,148	8,366
October	152,511	3,294	10,989
Ten months	1,628,005	26,270	98,956

* Calendar years.

Imports of Iron and Steel into the United States (In Gross Tons)

	†Sept. 22 to Oct. 31, 1922.	October, 1923.	Ten months ended October, 1922.	Ten months ended October, 1923.
Pig iron	120,779	9,349	229,950	346,166
Ferromanganese	11,229	8,802	83,240	82,452
Ferrosilicon	565	570	13,339	10,469
Scrap	28,677	3,046	88,792	154,416
Stl ingots, blms, billets, slabs, steel bars	7,736	2,477	23,952	17,425
Rails and splice bars	2,394	2,881	24,260	25,403
Structural shapes	1,434	654	3,321	8,522
Boiler and other plates*	674	89	674	1,663
Sheets and saw plates	90	287	90	2,235
Bar iron	526	348	4,806	7,131
Tubular products*	306	407	306	3,695
Castings and forgings*	159	131	159	2,307
Nails and screws*	109	81	109	1,005
Tin plate	42	47	2,302	9,738
Bolts, nuts, rivets and washers*	31	22	31	177
Wire rods	27	295	1,328	3,317
Round iron and steel wire*	282	219	282	3,226
Flat wire and strip steel*	19	149	19	1,011
Wire rope and insulated wire, all kinds*	7	28	7	868
Total	175,086	29,882	476,967	681,226
Manganese ore	18,452	16,842	346,179	179,255
Iron ore	123,407	236,442	807,594	2,533,586
Magnesite	17,816	371	108,006	62,499

* Not reported separately previous to September 22, 1922.

† Present tariff law became effective September 22, 1922.

SECRETARY HOOVER ON POWER PROJECTS

Investors Should Note Northeastern United States Far Behind Northwestern

SPEAKS AS AN ENGINEER

Herbert Hoover, Secretary of Commerce, spoke before the Investment Bankers Association banquet, recommending to investors the power development of the United States. He spoke both as an engineer and as a Government official. His address is summarized in **Power** as follows:

The function of the investment banker is to find the money for the advancing equipment of the nation. As science advances, it is the duty of the engineer to lead its promises up to the investment banker. I wish to suggest to you one of the new fields, or an old field in which there has been a great advancement in the past, and one in which you will be called upon for even greater effort. I refer to the great discoveries in the transmission of electrical power, the great perfection that has been produced by our engineers in the production of power and in the great centralization of plants. It has opened for us a new era in the production and distribution of power. While in the last decade it has multiplied our electrical equipment by ten, I am convinced it is going to be multiplied by ten in the next few years. It will produce great economies in the distribution of the load as between industries, as between seasons and between hours of the day. It will reduce our reserves and equipment. It now makes possible the generation of power in great centralized plants. It will in fact, reduce the cost of the production of power by figures of which we have not dreamed.

The Northeastern part of the United States alone has well demonstrated that fact. An investment of a billion and a quarter dollars means a saving of more than $500,000 annually in operating cost. We should make a saving of 50,000 tons in the consumption of coal.

It is true that some parts of our country have made great advances in this direction. There is a continuous interconnected power system, with the exception of one gap, between Seattle and San Diego. In the northeastern part of the United States such an advance has lagged far behind both the South and the West.

Our power development has taken place largely since the regulation of public utilities. Through that regulation and through the better understanding of the investment banker, through the greater skill of the engineers, there has been a more reliable return to the investor in these than from any other form of our national enterprise. You need have no fear that its future development will not justify your activity.

Investment banking is not my profession, but the investment banker is not a stranger to me. As I review some twenty-five years of incarnation as an engineer, it seems to me that a large part of it was occupied in arguments with the investment banker. As these arguments come back to me, they remind me of two main themes: Trying to explain where investment left off and where the speculation began; trying to convince him that public necessity and the advance of industry, good morals and his own pocketbook required him to find more money if he would save the gilt-edge investment that he had already made. You have a responsibility in the guardianship of our national interests in the conduct of capital.

Now in these matters of responsibility in our business world we approach a problem that goes to the root of our whole social life; that is, that we have to preserve the initiative and the vigor and the originality of the individual American and at the same time carry on this great social conflex of political life. The solution does not lie in legislation and in government, but it does lie in an enlarged sense of the responsibility of the individual to his fellow members of society.

The building up of these responsibilities through the standards set by such institutions as yours is a direct contribution to the greatest problem that we have to meet this day.

IRON AND STEEL MARKET

By December 1st the year-end had been so closely approached that the volume of buying of steel products was not as indicative as it usually is of the underlying conditions in steel. Unless there is good reason for laying in stocks of steel, which of course does not exist now, buyers are expected to curtail their purchases for early delivery as the end of the year draws near so as to reduce inventories. As a matter of fact the volume of steel buying, generally speaking, decreased during November, but at no great pace, and prospects at the beginning of December were that buying for early deliveries would decrease farther in the month, while there might or might not be a development of first quarter buying on a fair scale. This would increase the total bookings but would not necessarily show any material change in the underlying conditions.

It would, of course, indicate increased "confidence," but "confidence" is, in the long run, of no very great value to the steel industry. What it wants is "orders," not so much orders for itself but orders in the hands of its customers, so that they will need steel—in other words, good consumption of steel.

In appraising the condition and prospects of the steel trade, or indeed of any trade, the most important things to consider with particular care are the things that are least known. That is where errors, obviously, are the most likely to be made. The relation between steel production and steel consumption will make or break the market every time. The production is closely known all the time. Every month a precise statement is made of the tonnage of ingots produced and with the last report as a basis so little estimating needs to be done, of the changes since, that the rate of production is always known quite accurately. Whether we realize it or not, the use we usually make of the production statistics is to give an indication of the rate of consumption, but this is really a case of the blind

COMPOSITE PIG IRON.

Computation for December 1, 1923.

One ton Bessemer, valley	$23.00
Two tons basic, valley (21.00)	42.00
One ton No. 2 fdy., valley	22.00
One ton No. 2X fdy., Philadelphia	24.14
One ton No. 2X fdy., Buffafflo	21.75
One ton No. 2 fdy., Cleveland	22.50
One ton No. 2 fdy., Chicago	23.61
Two tons No. 2 southern foundry, Cincinnati (24.05)	48.10
Total, ten tons	227.10
One ton	**22.710**

Averaged from daily quotations.

	1923.	1922.	1921.	1920.	1919.	1918.
Jan.	27.31	19.71	32.62	39.84	32.39	34.19
Feb.	27.98	19.31	29.95	42.72	32.39	34.19
Mar.	30.36	19.26	27.35	43.05	30.47	34.14
Apr.	31.44	20.77	25.80	43.62	28.05	33.88
May	30.84	23.91	24.67	44.43	27.74	33.88
June	29.11	24.29	23.08	44.80	27.15	33.91
July	26.98	24.54	21.57	45.60	27.66	34.04
Aug.	26.10	27.74	20.29	47.41	27.99	34.04
Sept.	25.98	32.48	20.99	48.98	28.26	34.31
Oct.	24.37	31.82	21.15	47.07	28.65	35.36
Nov.	22.49	29.47	20.92	41.80	31.48	35.38
Dec.	....	26.73	20.42	36.31	36.73	35.23
Year	....	25.00	24.05	43.80	29.91	34.38

Annual Averages.

1917	39.99	1914	13.52
1916	20.31	1913	15.42
1915	14.15	1912	14.82

COMPOSITE STEEL.

Computation for December 1, 1923.

Pounds	Group	Av. Price	Extension
2½	Bars	2.40	6.000
1½	Plates	2.50	3.750
1½	Shapes	2.50	3.750
1½	Pipe (1-3)	3.80	5.700
1½	Wire nails	3.00	4.500
1	Sheets (28 ga.)	2.75	3.750
½	Tin plate	5.50	2.750
Total, ten pounds			30.200
One pound			**3.02**

Averaged from daily quotations.

	1923.	1922.	1921.	1920.	1919.	1918.
Jan.	2.59	2.16	3.25	3.35	3.58	3.80
Feb.	2.72	2.14	3.10	3.58	3.58	3.80
Mar.	2.83	2.09	2.94	3.78	3.47	3.80
Apr.	2.99	2.16	2.93	3.77	3.25	3.80
May	3.03	2 18	2.93	3.71	3.25	3.80
June	3.03	2.22	2.83	3.67	3.25	3.80
July	3.03	2.23	2.63	3.70	3.25	3.80
Aug.	3.03	2.36	2.48	3.80	3.25	3.80
Sept.	3.03	2.51	2.37	3.80	3.22	3.80
Oct.	3.02	2.57	2.31	3.67	3.23	3.80
Nov.	3.02	2.57	2.28	3.50	3.25	3.80
Dec.	....	2.57	2.23	3.28	3.25	3.67
Av.	....	2.31	2.69	3.63	3.32	3.79

Annual Averages.

1917	4.46	1915	1.63	1913	1.72
1916	2.80	1914	1.52	1912	1.62

leading the blind, for what would be of most value would be information as to the relation between production and consumption, and if we estimate by means of production, how can we compare production and consumption?

Every time the steel market has broken stocks have been discovered, which buyers liquidate, and during the process production is under consumption, while previously it must have been above consumption.

The use we ordinarily make of production statistics leads us to conclude, when we see production is large, that the state of trade is good.

If we knew precisely what consumption was, we should, instead, be favorably impressed by decreased production and unfavorably impressed by increased production.

That is the difference—rather a wide one—between knowing what consumption is and not knowing.

All through the year now drawing to its close the chief danger to the steel

PIF IRON PRICES

(Averaged from daily quotations; at Philadelphia, Buffalo, Cleveland and Chicago, prices are delivered.)

	Bessemer, Valley	Basic No. 2 fdy. Valley		Basic. Phila.	No. 2X Phila.	No. 2X foundry Buffalo.	No. 2 fdy. Cleveland.	No. 2 fdy. Chicago.	No. 2 fdy. Birmingham.	Ferro-manganese.*	Comp. Pig Iron.
Feb. 1921	29.63	27.71	28.29	29.28	30.73	30.17	30.15	30.87	27.50	90.00	29.95
Mar. ...	26.70	24.41	25.89	26.54	28.03	29.01	27.70	27.07	25.52	90.00	27.35
April ..	25.00	23.00	24.81	25.47	26.38	27.17	26.77	25.32	23.77	90.00	25.80
May ...	24.32	22.15	23.60	23.70	24.96	25.40	25.56	23.70	21.80	85.00	24.47
June ...	22.88	21.20	22.42	23.54	24.21	22.45	24.17	22.08	20.48	75.00	23.08
July	21.34	19.52	20.40	22.40	23.00	20.68	21.66	19.98	20.18	70.00	21.57
Aug. ...	20.00	18.22	19.59	19.70	20.42	19.48	20.56	19.64	18.70	68.50	20.29
Sept. ..	20.00	19.00	20.86	19.14	20.84	20.08	20.56	22.18	19.06	66.00	20.99
Oct. ...	20.00	19.24	21.00	20.50	21.40	20.50	20.56	22.35	19.00	60.00	21.15
Nov. ...	20.00	19.00	20.78	20.50	21.93	19.82	20.56	21.79	18.56	60.00	20.92
Dec. ...	20.00	19.00	20.00	20.45	21.88	19.38	20.56	20.53	17.31	59.00	20.42
Jan. 1922	19.62	18.19	19.38	20.25	21.34	19.75	19.92	19.84	15.96	58.00	19.71
Feb. ...	19.40	18.00	18.92	19.84	21.34	19.06	19.56	19.18	15.33	65.75	19.31
Mar. ...	19.02	17.89	18.87	19.84	20.73	18.56	19.56	20.48	15.31	62.50†	19.26
April ..	20.88	19.98	20.74	20.75	22.90	20.89	20.76	21.06	15.74	68.00†	20.77
May ...	25.08	24.62	24.00	23.37	25.51	23.44	24.56	23.05	17.63	70.00†	23.91
June ..	25.00	25.00	24.00	25.00	26.62	22.96	24.56	23.83	18.44	68.50†	24.29
July ...	25.00	24.32	24.20	25.54	28.00	25.05	24.56	24.73	18.56	69.00†	24.54
Aug. ...	27.74	26.17	29.04	29.00	31.69	30.42	29.16	28.17	20.37	70.00†	27.74
Sept. ..	33.76	30.08	35.02	30.90	34.76	34.13	35.50	32.53	25.40	77.00†	32.48
Oct. ...	33.23	30.23	31.63	29.50	32.69	31.60	34.27	32.15	27.04	100.00†	31.82
Nov. ...	31.70	28.28	28.78	28.14	30.78	28.41	31.34	30.65	24.12	100.00‡	28.46
Dec. ...	27.78	24.96	25.92	27.50	28.53	26.19	27.38	28.09	22.70	100.00‡	26.73
Jan. 1923	27.50	25.00	27.00	27.90	28.72	27.44	27.83	29.09	23.23	103.00‡	27.31
Feb. ...	27.75	25.67	27.21	28.25	29.79	28.52	28.42	30.13	24.29	106.00‡	27.98
Mar. ...	29.94	29.44	30.00	29.17	31.86	29.40	31.31	31.46	26.33	117.00‡	30.26
April ..	31.00	31.00	31.00	30.50	33.01	30.17	32.50	32.61	27.00	116.50‡	31.44
May ...	30.23	29.33	30.69	30.85	32.64	29.29	32.13	32.61	27.00	123.00‡	30.84
June ..	28.73	26.85	28.04	28.20	30.47	28.87	29.85	32.11	25.63	125.00‡	29.11
July ...	26.82	25.11	25.70	26.45	27.80	25.11	27.32	28.71	25.00	120.00‡	26.98
Aug. ...	26.50	25.00	25.00	25.00	25.50	24.75	26.77	27.65	23.31	117.50‡	26.10
Sept. ..	26.50	24.92	24.96	24.50	26.03	24.65	26.71	27.36	22.81	112.00‡	25.98
Oct. ...	25.33	24.00	23.76	24.00	24.33	22.87	25.31	25.76	20.11	109.00	24.37
Nov. ...	23.82	21.20	21.84	22.49	22.55	20.97	23.60	23.59	19.04	107.50	22.49
Yearly averages.											
1913 ...	16.26	14.77	14.87	16.23	16.56	14.87	15.37	16.39	11.73	57.87	15.42
1914 ...	13.99	12.89	13.02	14.02	14.59	12.84	13.76	14.15	10.25	55.80	13.52
1915 ...	14.90	13.78	13.81	14.88	15.25	13.98	14.31	14.46	10.59	92.21	14.15
1916 ...	23.05	19.87	20.16	20.96	21.20	20.63	20.40	20.67	15.84	164.12	20.31
1917 ...	42.67	39.10	39.89	39.37	40.80	40.41	40.61	41.06	35.11	309.17	39.99
1918 ...	35.46	32.50	33.27	34.10	35.56	33.97	33.62	33.77	33.20	245.83	34.38
1919 ...	29.62	27.49	28.63	30.02	32.75	30.53	29.14	29.37	28.34	132.16	29.91
1920 ...	42.85	42.05	43.25	43.26	46.74	45.23	43.66	43.25	40.43	172.33	43.80
1921 ...	23.49	21.87	23.30	23.56	24.74	23.78	24.34	24.05	21.92	76.54	24.05
1922 ...	25.68	23.98	25.04	24.88	27.07	25.04	25.93	25.31	19.72	75.33	25.00

* Delivered. † Seaboard. ‡ F. o. b. furnace.

market was an excess of production over consumption. That would lead to accumulation of stocks, and eventually the time would come when buyers would have to liquidate them. No amount of confidence among steel buyers would help the steel market in the long run. Excess of confidence would postpone the liquidation and likewise make it more severe when it did come.

In the matter of whether the steel market was solvent or insolvent, whether it could continue doing business in its old way or would have to go into liquidation, the chief item on the asset side, in making an appraisal, has been the conservative feeling that has existed in business circles for some seven months past—since last May—for that furnished a strong suggestion that buyers would hardly be carrying excessive stocks. If not, then the consumption of steel in the first half of 1923 was very large, substantially equal to production, and one can see that the consumption in the second half of the year could not be much less than the consumption in the first half, whatever that might have been.

There are statistics of building contracts let, railroad car loadings, bank debits, and various other items, that are useful and trustworthy for a short range comparison like that, but quite useless for a long range comparison. Who is there who, denied all other information, could estimate the consumption of steel in 1923 by being told that in 1912 and 1913 production of ingots was 30,000,000 tons, and population, employment, bank clearings, railroad ton-mileage, building, etc., had increased by such and such amounts from 1913 to 1923?

Peak production in steel was reached last April, and declining production since then has been a favorable factor for the future of steel if we know from other data that steel consumption continues high.

This we do know, from the statistics relating to the general business activity of the country. The rate of steel ingot production at the end of November was between 15 and 20% under the rate of last April, and it would be hard to believe that the rate of steel consumption has decreased more, if as much.

It would be substantially accurate to say that during every decline in the steel market since the steel market

UNFINISHED STEEL AND IRON BARS.

Averaged from daily quotations.

1921—	Billets. Pitts.	Sheet Bars. Pitts.	Rods. Pitts.	—Iron bars, deliv.— Phila.	Pitts.	Ch'go.
Jan.	45.00	47.00	57.00	2.85	3.06	2.68
Feb.	42.00	42.00	57.00	2.70	2.70	2.62
Mar.	39.00	39.00	47.00	2.56	2.60	2.60
April	37.00	38.50	47.50	2.35	2.45	2.45
May	37.00	39.00	48.00	2.35	2.35	2.38
June	35.00	36.00	48.00	2.20	2.25	2.25
July	32.00	33.00	43.00	2.07	2.20	1.94
Aug.	30.25	30.50	42.00	2.00	2.08	1.75
Sept.	30.00	30.00	40.50	1.97	2.00	1.75
Oct.	30.00	30.00	40.00	1.92	2.00	1.75
Nov.	29.00	30.00	40.00	1.90	1.97	1.70
Dec.	29.00	29.00	38.00	1.85	1.95	1.70
1922—						
Jan.	29.00	29.00	37.00	1.80	1.82	1.60
Feb.	28.50	29.00	36.00	1.75	1.78	1.60
Mar.	28.00	29.00	36.00	1.70	1.70	1.54
April	30.00	31.75	38.00	1.81	1.75	1.57
May	34.00	35.00	38.00	1.86	1.83	1.65
June	35.00	35.00	38.00	1.96	1.95	1.73
July	35.00	35.00	40.00	2.12	2.13	1.85
Aug.	37.00	37.00	43.00	2.16	2.15	1.95
Sept.	39.00	40.00	45.00	2.48	2.25	2.25
Oct.	39.50	39.50	45.00	2.43	2.40	2.50
Nov.	37.75	37.75	45.00	2.37	2.40	2.50
Dec.	36.50	36.50	45.00	2.32	2.35	2.50
1923—						
Jan.	37.50	37.50	48.50	2.36	2.37	2.45
Feb.	39.40	39.40	50.00	2.51	2.54	2.35
Mar.	44.00	44.00	50.00	2.70	2.70	2.50
April	46.30	45.60	50.00	2.82	2.80	2.60
May	45.00	45.00	50.00	2.82	2.80	2.60
June	43.50	43.50	51.00	2.80	2.75	2.60
July	42.50	42.50	51.00	2.69	2.70	2.60
Aug	42.50	42.50	51.00	2.72	2.70	2.60
Sept.	42.50	42.50	51.00	2.70	2.70	2.40
Oct.	42.50	42.50	51.00	2.67	2.70	2.34
Nov.	42.50	42.50	51.00	2.67	2.70	2.35
Yearly averages						
1913.	25.56	26.35	28.39	1.51	1.59	1.45
1914.	20.08	20.84	25.50	1.20	1.27	1.07
1915.	23.14	23.46	28.28	1.37	1.32	1.24
1916.	45.02	45.10	57.58	2.57	2.59	2.31
1917.	71.15	75.87	80.23	4.06	4.09	3.78
1918.	47.30	50.80	57.00	3.71	3.50	3.50
1919.	40.52	43.77	53.11	2.94	2.80	2.69
1920.	57.79	65.21	70.00	4.35	4.13	3.65
1921.	34.60	35.33	45.67	2.23	2.30	2.13
1922.	34.10	34.54	40.50	2.06	2.04	1.94

WAGE SCALE AVERAGES

	Bar Iron.	Sheets.	Tin Plate
Jan.-Feb. ..	2.25	3.30	4.80
Mar.-April .	2.35	3.40	4.80
May-June ...	2.50	3.60	5.20
July-Aug. ..	2.50	3.70	....*
Sept.-Oct. ..	2.40	3.75	....

* Returns discontinued.

came into existence every reviewer has said at one time or another that the decline would be short lived because this time stocks of steel were light, and has afterwards regretted that he made the statement. The time that steel prices did not decline of their own accord was the "Gary dinner" period of 1908, and then the point emphasized was that opportunity was being given buyers to liquidate their stocks without loss.

Accordingly it would be unenterprising to assert now that stocks of steel in the hands of buyers are light, but it can be said that the appearances are in that direction. There has been ample warning, in the predictions for many months past that steel prices would begin to decline long before the end of the year.

Buyers have plainly been cautious.

There have been numerous cases of manufacturing consumers not contracting for the quarter now ending because they had stocks and intended to eke out those stocks simply by prompt purchases.

If we assume, then, that next year will not be entered with stocks requiring liquidation, steel prospects depend on the relation between consumption in 1923 and consumption in 1924. The prospect, in the case of nearly every consuming line, is that consumption will be only slghtly less. The line of freight car building represents a possible if not probable exception, but the railroads may easily buy steel in other ways to make up. The oil industry has begun to recover from the poor statistical position that has so greatly disturbed Wall Street. One should not predict smaller consumption of oil country tubular goods in 1924 than in 1923, for the poor position of oil existed for more than half the year 1923. It is a bad thing for 1923 rather than for 1924.

PIG IRON

A buying movement in pig iron culminated last March, for second quarter in some districts, through the third quarter in others.

Another buying movement occurred in November. Between the two there was an almost phenomenally dull market, whereby the recent buying movement had all the greater influence in creating favorable sentiment. A million tons or so represented the turnover.

The movement did not indicate a change in underlying conditions. It

STEEL MAKING PIG IRON AVERAGES

Bessemer and basic pig iron averages compiled by Messrs. W. P. Snyder & Company from sales in the valley market of 1,000 tons and over.

	Bessemer.			Basic.		
	1923.	1922.	1921.	1923.	1922.	1921.
Jan.	27.50	19.50	32.00	25.58	18.19	30.00
Feb.	28.02	19.50	27.00	26.38	17.75	25.00
Mar.	30.26	19.39	26.20	30.02	18.00	24.50
April	31.00	20.54	25.00	31.00	19.30	22.50
May	30.10	24.40	24.25	28.06	24.91	21.87
June	28.50	25.00	23.00	26.57	25.00	20.70
July	26.70	25.00	20.88	24.75	24.56	18.80
Aug.	26.50	28.67	20.00	25.00	25.41	18.33
Sept.	26.50	33.50	20.00	24.50	32.93	19.25
Oct.	25.20	33.50	20.00	23.25	30.00	19.00
Nov.	23.03	31.75	20.00	20.81	27.60	19.00
Dec.	.....	28.10	20.00	.....	24.57	18.69
Year	.....	25.75	23.19	.....	24.02	21.47

All prices are f.o.b. valley furnace; freight, August 26, 1920, $1.96; August 1, 1922, $1.77.

STEEL CORPORATION BOOKINGS

Changes in unfilled tonnage with shipments and bookings estimated in percentage of capacity.

	Shipments.	Bookings.	Difference.	Difference.
1922.				
Jan.	47	45	— 2	— 26,736
Feb.	57	49	— 8	— 100,609
Mar.	65	90	+25	+ 353,079
April ...	70	115	+45	+ 602,769
May	75	86	+11	+ 157,311
June	75	103	+28	+ 381,303
July	75	86	+11	+ 140,630
Aug.	67	79	+12	+ 173,944
Sept. ...	67	121	+54	+ 741,502
Oct.	76	91	+15	+ 210,680
Nov.	81	76	— 5	— 62,045
Dec.	80	73	— 7	— 94,539
Jan., 1923	86	97	+11	+ 165,073
Feb.	88	117	+29	+ 373,213
Mar.	89	97	+ 8	+ 119,343
April ...	93	84	— 9	— 114,823
May	93	72	—21	— 307,158
June	92	49	—43	— 595,090
July	89	53	—36	— 475,498
Aug.	87	52	—35	— 496,100
Sept. ...	87	58	—29	— 378,913
Oct.	90	65	—25	— 362,925

Unfilled Orders.

At end of the quarter, last three figures omitted.

	First.	Second.	Third.	Fourth.
1911	3,447	3,361	3,611	5,084
1912	5,304	5,807	6,551	7,932
1913	7,468	5,807	5,003	4,282
1914	4,653	4,032	3,787	3,836
1915	4,255	4,678	5,317	7,806
1916	9,331	9,640	9,522	11,547
1917	11,711	11,383	9,833	9,381
1918	9,056	8,918	8,297	7,379
1919	5,430	4,892	6,284	8,265
1920	9,892	10,978	10,374	8,148
1921	6,284	5,117	4,560	4,268
1922	4,494	5,635	6,691	6,746
1923	7,403	6,386	....	....

scarcely did more than indicate that conditions were unlikely to grow worse.

Many furnaces had blown out, and probably no idle furnaces, certainly not many, will have to blow in to execute the contracts just made. As a result of the buying, prices advances about a dollar a ton, but they had previously declined about $10.00. The movement, finally, was confined almost wholly to foundry iron. Yet it certainly did have much favorable influence upon sentiment in the iron and steel trade.

PIG IRON PRODUCTION.

Output of pig iron in November was approximately 2,894,295 tons. This includes coke and anthracite iron only. The daily rate for the thirty active days of the month was 96,476 tons according to furnace reports to the Iron Age. Both the total and daily rates were the smallest in any month since November 1922. As compared with October, the decrease in output last month was a little over 5%, the total output in October having been 3,149,158 tons, equivalent to a daily rate for the 31 days of 101,586 tons.

Steel companies in November produced pig metal at the rate of a little over 72,352 tons, the total being 2,170,570 tons. In October steel companies produced 2,394,922 tons. Steel companies lost during the month therefore 224,352 tons out of a total November loss of 254,863 tons. Eight furnaces belonging to steel companies were blown out, four by the Steel Corporation and four by independent makers. One furnace was blown in, making a net loss of seven furnaces by the steel companies.

Merchant producers blew out nine furnace and put in two, a net loss of seven furnaces during the month. Total production by these merchant furnaces last month was 723,725 tons, against an Oc-

IMPORTANT STEEL PRICE CHANGES

At the end of 1920 prices of independent steel producers had declined to Industrial Board schedule of Mar. 21, 1919, to which U. S. Steel Corporation had meanwhile adhered. These prices are given under date of Jan. 1, 1921, subsequent changes being in open market. Only the more important changes are listed.

BARS.

Jan. 1, 1921	2.35	Mar. 29	1.50
Feb. 11	2.00	May 17	1.60
April 13	2.10	July 26	1.70
June 24	2.00	Aug. 9	1.80
July 5	1.90	Aug. 25	1.90
July 26	1.75	Sept. 27	2.00
Sept. 9, 1921	1.65	Jan. 31, 1923	2.10
Sept. 27	1.60	Feb. 16.	2.20
Nov. 9	1.55	Feb. 23,	2.25
Dec. 19	1.50	April 2,	2.35
Feb. 18, 1922	1.40	April 27	2.40

PLATES

Jan. 1, 1921	2.65	Nov. 9	1.50
Feb. 10	2.40	Feb. 18, 1922	1.40
Feb. 17	2.25	April 5	1.50
Feb. 23	2.10	May 25	1.60
April 13	2.20	July 26	1.70
June 10	2.00	Aug. 9	1.80
July 15	1.90	Aug. 25	2.00
July 26	1.85	Jan, 19, 1923	2.10
Aug. 25, 1921	1.80	Feb. 9	2.20
Sept. 2	1.75	Feb. 23	2.25
Sept. 9	1.65	Mar. 21	2.35
Sept. 27	1.60	April 2,	2.45
Oct. 27	1.55	April 27	2.50

SHAPES

Jan. 1, 1921	2.45	Dec. 21	1.50
Feb. 11	2.25	Feb. 18, 1922	1.40
Feb. 17	2.20	Mar. 9	1.50
Feb. 28	2.10	May 25	1.60
April 13	2.20	July 26	1.70
June 24	2.00	Aug. 9	1.80
July 22	1.90	Aug. 25	2.00
July 26	1.85	Jan. 19, 1923	2.10
Aug. 25, 1921	1.80	Feb. 16	2.20
Sept. 2	1.75	Feb. 23	2.25
Sept. 9	1.70	Mar. 21	2.35
Sept. 26	1.65	April 2	2.45
Sept. 27	1.60	April 27	2.50

STEEL PIPE

Jan. 1, 1921	57½%	Sept. 16	68½%
Mar. 24	58½%	Dec. 16	71%
April 7	59½%	Aug. 23, 1922	68%
April 13	62½%	Oct. 19, 1923	66%
July 9, 1921	64½%	Feb. 3, 1923	64%
		April 19	62%

WIRE NAILS

Jan. 1, 1921	3.25	Dec. 9,	2.75
Feb. 17	3.10	Dec. 21	2.50
Mar. 4	3.00	Feb. 21, 1922	2.40
April 13	3.25	Aug. 30	2.60
June 1	3.00	Sept. 27	2.70
July 9, 1921	2.75	Feb. 1, 1923	2.80
Sept. 12	2.90	Mar. 26,	2.90
		April 20,	3.00

BLACK SHEETS

Jan. 1, 1921	4.35	Sept. 22	3.00
Feb. 11	4.15	Nov. 1	2.90
Mar. 8	4.00	Nov. 25	3.00
Mar. 17	3.85	April 7, 1922	3.15
April 13	4.00	Aug. 14	3.35
July 5	3.50	Feb. 23, 1923	3.60
July 26, 1921	3.25	Mar. 27,	3.75
Aug. 1	3.00	April 3,	4.00
Aug. 25	2.75	April 26	3.85
		Oct. 16	3.75

TIN PLATE

Jan. 1, 1921	7.00	Mar. 21, 1922	4.60
April 13	6.25	April 5	4.65
June 7	6.00	April 24	4.70
June 14	5.75	May 17	4.75
Aug. 1, 1921	5.25	Feb. 26, 1923	5.00
Sept. 15	5.00	Mar. 23	3.00
Sept. 19	4.75	Mar. 27,	5.50

BLUE ANNEALED SHEETS

Jan. 1, 1921	3.55	Sept. 22	2.50
Feb. 11	3.35	Nov. 1	2.25
Feb. 16	3.20	April 7, 1922	2.40
Mar. 8	3.00	Aug. 14	2.50
April 13	3.10	Sept. 20	2.60
June 10	2.90	Nov. 23,	2.50
July 6, 1921	2.65	Feb. 23, 1923	2.75
Aug. 2	2.40	Mar. 23	3.00
Aug. 16	2.25	April 3,	3.25
		April 26	3.00

GALVANIZED SHEETS

Jan. 1, 1921	5.70	Aug. 25	3.75
Feb. 11	5.55	Sept. 22	4.00
Feb. 16	5.35	Nov. 1	3.90
Feb. 24	5.25	Nov. 25	4.00
Mar. 8	5.10	April 7, 1922	4.15
Mar. 17	5.00	Aug. 14,	4.35
June 22	4.75	Feb. 23, 1923	4.75
July 5, 1921	4.50	Mar. 20	5.00
July 22	4.25	April 3,	5.25
Aug. 2	4.00	April 26	5.00

tober output of 754,236 tons, being a loss of 30,511 tons during the month. The daily rate in November was 24,124 tons against a daily rate in October of 24,331 tons. The November rate this year was the smallest since November 1922.

The above figures make it evident that most of the decrease in production last month was due to the blowing out of furnaces by steel companies. The daily rate of output of such furnaces in November was the smallest since October 1922, when the daily rate was 66,060 tons.

On December 1st 231 furnaces were active, having an estimated daily capacity of 94,345 tons. On November 1st the 245 furnaces active ad a rated capacity of 99,030 tons a day. In all 17 furnaces were blown out and three were blown in last month, being a net reduction of 14. At the beginning of this month, therefore, coke and anthracite pig iron was being produced at the rate of 34,435,925 tons a year.

In the first eleven months of 1923 the total production of coke and anthracite iron was 37,138,326 tons. A further reduction in daily output is expected in December, but it will be small. The prospect, therefore, is for a 1923 production of 39,900,000 tons, in round numbers. Estimating charcoal iron production at about 250,000 tons for the year would make total production of all kinds of pig iron in 1923 approximately 40,150,000 tons. The indication, therefore, is that pig iron production this year will be record-breaking.

The following table shows the estimated annual rates of production of coke and anthracite pig iron in each month during the last three years.

Estimated annual rates.

	1923	1922	1921
Jan. ...	38,275,000	19,300,000	28,750,000
Feb. ..	39,250,000	21,300,000	25,550,000
Mar. ..	41,300,000	24,000,000	19,000,000
April .	43,400,000	25,250,000	14,600,000
May ...	45,800,000	27,250,000	14,450,000
June ..	44,850,000	28,900,000	13,000,000
July ...	43,550,000	28,500,000	10,200,000
Aug. ..	40,615,000	21,550,000	11,250,000
Sept. ..	38,028,000	24,950,000	13,000,000
Oct. ...	37,079,000	31,350,000	14,600,000
Nov. ...	35,214,000	34,900,000	17,200,000
Dec. ...	.....	36,350,000	19,400,000

Yearly Totals

1922....	27,219,904		
1921....	16,688,126	1916....	39,434,797
1920....	36,925,987	1915....	29,916,213
1919....	31,015,364	1914....	23,332,244
1918....	39,054,644	1913....	30,966,152
1917....	38,621,216	1912....	29,726,937

Allegheny Steel
and
Allegheny Iron

SHEETS BOILER TUBES
PLATES WASHERS
STEEL CASTINGS
Hot and Cold Pressed Stampings

ALLEGHENY STEEL COMPANY
PITTSBURGH, PA.

SOLICITING AGENTS

501 Fifth Ave., New York 1436 Dime Bank Bldg., Detroit, Mich.
Steel Sales Corporation, 129 South Jefferson Street, Chicago.

STEEL PRODUCTION

Production of steel ingots by all companies in November amounted to 3,113,804 tons which was equivalent to a daily rate of 119,762 tons. The November output, therefore, was the smallest since September 1922. Companies which report to the American Iron & Steel Institute produced 2,969,012 tons which was at a daily rate of 114,192 tons.

The United States Steel Corporation, operating at an average rate of 84.9% of capacity, produced 1,611,402 tons, daily output being 61,977 tons.

Independent steel companies employing only 59.8% of capacity produced 1,502,402 tons which was at a daily rate of 57,785 tons. The industry as a whole, therefore, utilized 70.6% of capacity in November against 77.3% of capacity in October and 93.1% in April.

The annual rate of production in November of all companies was 37,126,220 tons a year against an annual rate in October of 40,735,860 tons. The peak of the year was reached in April when the daily rate of all companies was 157,776 tons or at an annual rate of approximately 49,100,000 tons.

In the first eleven months of the year all companies produced 40,383,191 tons of which companies which reported to the American Iron & Steel Institute produced 38,505,373 tons. The average daily rate of output for the first eleven months was 141,200 tons, equivalent to an annual rate of 43,772,000 tons. The probability however, is that production in December will show further falling off. Estimating this month's output at 2,875,000 tons—the smallest since August 1922—the total output for the year will be approximately 43,258,000 tons or about 300,000 tons less than the record-breaking output of 1917 which was 43,619,200.

The average daily rate of production throughout the year, therefore would be 139,542 tons which points to the employment of an average rate of 82.3% of total capacity throughout the year.

The most marked feature of November was the drop in production by independent steel companies which amounted to 15% while Steel Corporation production fell off 8%.

In November the total output of 2,969,012 tons produced by companies which report to the Iron & Steel Institute included 2,343,368 tons of open-hearth, 616,335 tons of Bessemer and 9,309 tons of all other steel. In the first eleven months out of a total of 38,505,373 tons, produced by the companies reporting to the Institute, 30,561,352 tons were open-hearth, 7,816,885 tons were Bessemer and 127,136 tons were of all other kinds of steel.

FABRICATED STEEL.

Orders for fabricated structural steel placed in November aggregated about 125,000 tons, equivalent to 50% of shop capacity, according to trade estimates. A few of the large contracts referred to a month ago were closed, but several of the largest are still under negotiation. At the beginning of December 100,000 to 150,000 tons were still pending. A few of these larger contracts may be released in December. Usually, however, December is a very quiet month as there is a disposition among contractors not to enter into obligations until after inventory time.

In the first week of December contracts for several large loft buildings in New York City were closed, amounting to between 20,000 and 25,000 tons. These should not be taken into November contracts but some fabricators close their books arbitrarily, either before or after the first of a calendar month. It is possible, therefore that if such contracts are included in the November total, last month's bookings were larger than the above estimate.

It is notable that one or two large contracts for loft buildings placed in the metropolitan district in November were closed at the expense of prices, that is, erected contracts were entered into at $80 a ton or from $10 to $20 a ton under the prices which have prevailed during the preceding few months. Contractors generally are expecting more favorable terms to be granted by the fabricating shops and structural mills. If this is done a larger part of the amount pending will be placed in the near future but if the structural mills hold out for 2.40c to 2.50c base for plain shapes, business will drag.

The largest contracts closed in November included 10,000 tons for lake boats, 10,000 tons for a Public Service power house at Kearney, N. J., 3,178 tons for a viaduct at Omaha, 1,000 tons for school houses, mainly in Greater New York, 5,059 tons for railroad bridges, 9,500 tons for loft buildings and apartment houses, and 2,000 tons for small

power stations, the latter outside of the large power house at Kearney.

New inquiries developed in November alone amounted to about 75,000 tons and in addition about an equal tonnage was carried over from previous months, contracts for which are still under negotiation. The largest contracts pending are about 30,000 tons for the Ford Motor Company for steel works and assembling plants, about 10,000 tons for railroad bridges, 18,000 tons for the American T. & T. building, 10,000 tons for the second unit of the Public Service power house at Kearney, 10,000 tons for the Palmer House, 5,300 tons for the Union League Club, and 5,000 tons for the Chicago Tribune building at Chicago.

At the beginning of December New York City announced its program for the building of school houses in 1924. The intention is to ask for bids on six school buildings each month during the first six months of the year, that is, a total of 36 school houses, the building of which it is estimated will require an aggregate of 50,000 tons of fabricated steel.

The Department of Commerce verified the Digest estimate of 120,000 tons fabricated orders placed in October, based on figures received from the principal fabricators of the country. Total sales of 107,797 tons were reported for October by firms, with a capacity of 224,060 tons per month. Shipments of firms reporting this item represented 80% of capacity.

Tonnage booked each month by 177 identical firms, with a capacity of 230,675 tons per month, is shown below, together with the per cent. of shop capacity represented by these bookings. For comparative purposes, the figures are also prorated to obtain an estimated total for the United States on a capacity of 250,000 tons per month.

	Actual tonnage booked.	Per cent of capacity.	Computed total bookings.
1922—			
October ..	133,037	58	145,000
November .	112,367	49	122,500
December .	138,737	60	150,000
1923—			
January ...	173,294	75	187,500
February ..	184,887	80	200,000
March	220,400	96	240,000
April	186,11[illegible]	81	202,500
May	131,875	57	142,500
June	118,117	51	127,500
July	117,563	51	127,500
August	134,431*	59	147,500
September.	121,045**	53	132,500
October ...	107,797***	48	120,000
November .	112,000	50	125,000

* Reported by 176 firms with a capacity of 229,475 tons.

** Reported by 173 firms with a capacity of 228,425 tons.

*** Reported by 156 firms with a capacity of 224,060 tons.

Percentage of fabricated orders to total shop capacity.

	1922	1921	1920	1919	1918	1917
Jan.	40%	18%	75%	12%	53%	61½
Feb.	43½	14	95	12½	55½	59
Mar.	77	29	83½	17½	47	68
April	89	31	68	24½	64	61
May	81	28	61½	49	60	56½
June	73	37	50	65	56	47½
July	69	33½	50	74	116½	41½
Aug.	68	33	40	78½	57	38
Sept.	64	48	43	78½	60	29
Oct.	58	54	25½	77½	43	61½
Nov.	49	55	27½	69	27	77
Dec.	58	40	26	85	29	114
Av.	64.2	35	53¾	53½	55½	59½

SEMIFINISHED STEEL

The steel mills continued during November to guard jealously the $42.50 price on sheet bars, while in billets and slabs the price was shaded not infrequently, there being more tonnage, no doubt, sold at under the price than at the price. Leading mills still consider $42.50, the market price on all three.

The market turnover has been light, The Carnegie Steel Company has informed customers in these lines that the first quarter price is $42.50.

HEAVY ROLLED STEEL

The continued predictions in some quarters, for months past, that finished steel prices would decline have really involved chiefly bars, shapes and plates.

The chances there were vastly greater than in other finished products. The market prices of 2.40c. on bars and 2.50c on shapes and plates have held to date.

There have been departures, probably in the case of some large and special orders, as well as in some small lot sales by eastern mills, only in their own territory.

The tonnage outlook in these heavy rolled products is distinctly not as good as in other finished products, as freight car buying is dragging, fabricated steel cotracts have been running light and there is no shipbuilding in general, though a fair volume of business in lake vessels.

STEEL INGOT OUTPUT

Monthly production of steel ingots, January, 1922, To December, 1922. Reported by companies which made 84.15% of the steel ingot production in 1922.

Months 1922.	Open-hearth	Bessemer	All Other	Monthly Production Companies Reporting	Calculated monthly production all Companies	No. of Working days	Approximate daily production all Companies.
January	1,260,809	331,851	822	1,593,482	1,891,857	26	72,764
February	1,395,835	348,571	616	1,745,022	2,071,772	24	86,324
March	1,918,570	451,386	795	2,370,751	2,814,667	27	104,247
April	1,997,465	445,939	1,109	2,444,513	2,902,240	25	116,090
May	2,214,774	494,893	1,474	2,711,141	3,218,794	27	119,215
June	2,143,708	487,851	2,918	2,634,477	3,127,775	26	120,299
July	2,020,572	464,047	2,485	2,487,104	2,952,806	25	118,112
August	1,807,310	404,379	2,893	2,214,582	2,629,256	27	97,380
September ..	1,911,147	460,127	2,505	2,373,799	2,818,261	26	108,395
October	2,352,207	518,010	2,198	2,872,415	3,410,265	26	131,164
November ...	2,360,903	525,945	2,449	2,889,297	3,430,309	26	131,935
December	2,241,104	536,214	2,572	2,779,890	3,300,416	25	132,017
Total	23,624,404	5,469,213	22,836	29,116,453	34,568,418	310	111,511

Monthly production of steel ingots, January, 1923 to October, 1923. Reported for 1923 by companies which made 95.35% of the steel ingot production in 1922.

Months 1923.	Open-hearth	Bessemer	All Other	Monthly Production Companies Reporting	Calculated monthly production all Companies	No. of Working days	Approximate daily production all Companies.
January	2,906,892	728,270	9,467	3,664,629	3,822,369	27	141,569
February	2,613,564	669,903	10,797	3,294,264	3,454,918	24	143,955
March	3,046,309	779,525	12,841	3,858,675	4,046,854	27	149,883
April	2,974,579	772,485	13,933	3,760,997	3,944,412	25	157,776
May	3,136,558	847,418	16,719	4,000,695	4,195,800	27	155,400
June	2,821,239	737,845	15,483	3,574,567	3,748,890	26	144,188
July	2,658,449	680,884	11,496	3,350,829	3,514,241	25	140,570
August	2,796,370	701,059	9,326	3,506,755	3,677,771	27	136,214
September	2,539,653	613,709	8 602	3,161,964	3,316,166	25	132,647
October	2,724,371	649,452	9,163	3,382,986	3,547,966	27	131,406
November	2,343,368	616,335	9,309	2,696,012	3,113,804	26	119,762
Eleven mos.	30,561,362	7,816,885	127,136	38,505,373	40,383,191	286	141,200

FINISHED STEEL PRICES.

(Averaged from daily quotations, f. o. b. Pittsburgh.)

	Shapes.	Plates.	Bars.	Pipe	Wire.	Wire Nails.	Grooved Steel Skelp.	Sheets Black.	Sheets Galv.	Sheets Blue Annld.	Tin plate.	Comp. Fin. Steel.
Jan. 1922	1.50	1.50	1.50	71	2.25	2.50	1.50	3.00	4.00	2.25	4.75	2.16
Feb.	1.46	1.46	1.46	71	2.22	2.47	1.46	3.00	4.00	2.25	4.75	2.14
Mar.	1.41	1.39	1.41	71	2.25	2.40	1.40	3.00	4.00	2.25	4.61	2.09
April	1.50	1.49	1.50	71	2.25	2.40	1.50	3.12	4.12	2.37	4.66	2.16
May	1.52	1.52	1.55	71	2.25	2.40	1.55	3.15	4.15	2.40	4.72	2.18
June	1.60	1.60	1.60	71	2.25	2.40	1.60	3.15	4.15	2.40	4.75	2.22
July	1.62	1.62	1.62	71	2.25	2.40	1.62	3.15	4.15	2.40	4.75	2.23
Aug.	1.82	1.82	1.80	70⅛	2.26	2.41	1.80	3.27	4.27	2.46	4.75	2.36
Sept.	2.00	2.00	1.92	68	2.37	2.62	2.10	3.35	4.35	2.60	4.75	2.51
Oct.	2.00	2.08	2.00	66⅞	2.45	2.70	2.05	3.35	4.35	2.70	4.75	2.57
Nov.	2.00	2.00	2.00	66	2.45	2.70	2.00	3.35	4.35	2.55	4.75	2.57
Dec.	2.00	2.00	2.00	66	2.45	2.70	2.00	3.35	4.35	2.50	4.75	2.57
Jan. 1923	2.04	2.04	2.00	66	2.49	2.70	2.00	3.35	4.35	2.50	4.75	2.59
Feb.	2.16	2.18	2.16	64¼	2.61	2.80	2.16	3.40	4.49	2.55	4.78	2.72
Mar.	2.29	2.29	2.25	64	2.70	2.82	2.30	3.63	5.00	2.95	5.09	2.83
April	2.46	2.46	2.36	63¼	2.70	2.94	2.40	3.97	5.20	3.20	5.50	2.99
May	2.50	2.50	2.40	62⅝	2.75	3.00	2.42	3.85	5.10	3.15	5.50	3.03
June	2.50	2.50	2.40	62	2.75	3.00	2.40	3.85	5.00	3.10	5.50	3.03
July ...	2.50	2.50	2.40	62	2.75	3.00	2.40	3.85	5.00	3.00	5.50	3.03
Aug.	2.50	2.50	2.40	62	2.75	3.00	2.40	3.85	5.00	3.00	5.50	3.03
Sept.	2.50	2.50	2.40	62	2.75	3.00	2.40	3.85	5.00	3.00	5.50	3.03
Oct.	2.50	2.50	2.40	62	2.75	3.00	2.40	3.80	5.00	3.00	5.50	3.02
Nov.	2.50	2.50	2.40	62	2.75	3.00	2.40	3.75	5.00	3.00	5.20	3.02
Yearly averages:												
1915	1.30	1.29	1.31	79¼	1.48	1.66	1.27	1.93	3.85	1.49	3.19	1.63
1916	2.50	2.82	2.48	70⅞	2.45	2.53	2.34	3.06	4.85	2.99	5.34	2.80
1917	3.66	5.21	3.49	52⅛	3.48	3.56	3.95	6.29	8.21	6.15	7.85	4.46
1918	2.99	3.24	2.89	51⅛	3.25	3.50	2.89	4.98	6.24	4.23	7.73	3.79
1919	2.53	2.71	2.43	56¾	3.06	3.31	2.51	4.43	5.78	3.63	7.08	3.32
1920	2.99	3.20	2.99	55⅝	3.40	3.67	3.00	5.85	7.39	5.06	7.29	3.63
1921	1.07	1.96	1.89	63¾	2.77	2.98	1.96	3.54	4.57	2.74	5.83	2.69
1922	1.79	1.71	1.70	69½	2.31	2.51	1.72	3.19	4.19	2.43	4.73	2.31

SHEETS AND TIN PLATES

Opening order books November 1st, at unchanged prices in both sheets and tin plates, the American Sheet &Tin Plate Company soon filled up quite well in tin plate to July 1st, chiefy because the two leading can companies were disposed to look far ahead, 1924 being expected to be a very good tin plate year.

Independents did not do as well, but booked a very fair volume of business.

If the precise figures were available they would undoubtedly show tin plate production in November to have been the greatest in any November in the history of the trade, also a higher proportion between November production and production in the preceding ten months than in any other year.

The $5.50 tin plate price is very stiffly maintained.

In sheets, on the other hand, there has been very little forward buying.

In prompt buying the demand has been quite good. In fact, both the leading interest and the independents produced sheets at a slightly greater rate in November than in October. As consumption can hardly have increased it would look as if there had been liquidation of stocks by buyers during October and less stock to liquidate in November.

Black and galvanized sheets stiffened a trifle during November, departures from 3.85c. for black and 5.00c. for galvanized being less common at the end than at the beginning of the month.

The automobile trade made strong efforts to get the automobile sheet market down from 5.35c. to 5.10c. On prompt shipment concessions to 5.20c. were obtained from a number of mills, but in no case for first quarter, and the balance of probabilities at this writing seems to be that the 5.35c. price will hold, in general, though there may be some shading.

SCRAP

The scrap markets showed a general stiffening tendency during November.

Producers were quite dissatisfied with the low prices for scrap, seeing that they were paying as high prices as ever for finished steel, and held scrap back, so that supplies in the market became quite limited. At the close of the month an interesting incident occurred in the Pittsburgh trade, the Carnegie Steel Company buying 25,000 tons or more of heavy melting steel, some of it if not all being at $19.00, a price well above the market. Seeing an upturn in prices, holders began offering their material, not waiting for the still higher prices they had been talking about. The net result of November developments is that scrap is put on a somewhat better basis as to prices, but there will have to be more consumer buying to sustain present quotations.

IRON AND STEEL SCRAP PRICES

	Heavy melting steel.			No. 1 cast.	
	Pitts.	Phila.	Chic.	Pitts.	Chic.*
Jan., '22	14.67	11.45	11.70	16.60	12.75
Feb. ...	14.25	11.50	11.75	16.25	12.80
Mar. ...	25.35	11.75	12.50	16.25	13.50
April ..	16.60	14.25	13.80	17.25	14.70
May ...	17.25	14.70	14.95	18.25	15.80
June ...	17.25	14.50	14.80	18.60	15.50
July ...	16.85	14.40	15.40	19.25	16.00
Aug. ...	17.45	14.75	16.00	19.35	17.25
Sept. ..	20.00	17.00	17.50	21.75	18.60
Oct. ...	21.00	18.35	18.65	24.00	19.60
Nov. ...	20.50	16.65	17.60	23.20	18.50
Dec. ...	20.40	16.70	17.50	22.75	18.35
Year ..	17.63	14.67	15.18	19.46	16.11
Jan., '23	22.00	20.85	19.30	23.50	20.40
Feb. ...	23.35	21.10	20.00	24.15	22.50
Mar. ...	25.30	35.25	23.45	26.25	24.75
April ..	25.00	24.00	22.25	27.15	23.20
May ...	22.50	20.25	19.50	26.25	20.75
June ...	21.10	18.30	18.25	24.40	18.85
July	18.35	17.10	17.20	21.85	18.15
Aug. ...	17.90	16.25	16.20	21.75	17.75
Sept. ..	17.90	17.05	16.50	21.65	19.25
Oct. ...	15.80	16.40	14.35	19.85	17.25
Nov. ...	16.10	15.30	14.50	18.85	17.25

* Per net ton.

FERRO-ALLOYS

Ferromanganese was dull and easy during the first three weeks of November. Sales were confined largely to small lots for this year's shipment but toward the close of the month more activity was developed. Sales were made by both domestic and British producers at $110.00 seaboard, (duty paid in case of foreign), but resale lots were disposed of at $107.00 to $107.50 a ton.

Later domestic consumers entered into competition with second hands and several thousand tons were sold at prices ranging from $107.50 to $109.00 seaboard basis for prompt and for shipment over the first quarter of next year.

Few British producers were willing to shade $110.00 seaboard duty paid and secured only a very small portion of the business. Some substantial inquiries were in the market at the beginning of

December. It is estimated that between 6,000 and 8,000 tons were sold in November but some of this business was not closed until the first three days of December. Home producers subsequently withdrew from the market at $107.50 with few offerings under $109.00 per ton when the month closed.

The Jones & Laughlin Steel Company recently put one of its Aliquippa furnaces on ferromanganese and is now independent of the open market. Some time since this company made a large purchase of foreign manganese ore, that is, before the duty, under the new tariff law, went into effect.

Spiegeleisen remained quiet and somewhat easier throughout the month, small sales of 19% to 21% being made at $40.00 a ton and $39.00 for 17% to 19%.

Buying of 50% ferro-silicon was largely confined to small lots at $80.00 to $82.50 delivered east of the Mississippi River. No announcement has as yet been made of the contract price for 1924 delivery, but it is expected that $80.00 per ton will be asked.

It is claimed that stocks of ferro-alloys in hands of consumers are light and this is partially confirmed by some further buying for this year's shipment.

As a rule consumers are desirous of going into next year with very light inventories. Ferro-tungsten has remained quiet but steady at 88c. to 90c. for lump, 93c. granulated and 96c. for powdered.

Ferro-chrome has been more active and steady.

A sale of 30,000 tons of Caucasion manganese ore is reported to have been made for shipment over the first quarter of 1924. Some smaller sales of Brazilian and Indian are also reported to have been made at prices ranging from 38c. to 40c. a unit and the higher grade of Caucasian ranging from 53% to 55% manganese contents, was later held at 41c. to 42 c. per unit.

Chinese tungsten ore was held at $8.00 to $9.00 and a scheelite at $10, per unit.

Chrome ore has been quiet but steady, the most recent sale being reported at $19.25 per ton.

Bessemer ferro-silicon and silvery iron were reduced during the month $2.00 a ton, but subsequently prices recovered $1.00 a ton.

Output of ferromanganese in the United States in November was only 14,439 tons, the smallest of any month this year. Production of spiegeleisen, however, increased slightly over October, the November output being 16,783 tons. In the first eleven months of this year, output of ferromanganese has been 228,162 tons and of spiegeleisen, 120,461 tons. In the twelve months of 1922 United States production of ferromanganese was 151,175 tons and of spiegeleisen 68,587 tons.

COAL

The coal situation is improved only in spots. Many mines have been forced to close throughout the country, due to the lack of demand, and to the extremely low prices that prevail for spot sales.

Those mines that have no contracts taken at prices prevailing last Spring, are not able to operate at today's prices, unless they are non-union mines, and in position consequently, to deal with their miners as to a reduction in pay from the average union scale. Certain operators in non-union territory in Pennsylvania and West Virginia have been able to do this, but on the whole, the greater percentage of non-union mines in both states still continue to pay at the post-war wage peak. At the moment, they have to sell their coal in a market that is offering the lowest prices since before America entered the war.

Throughout the Pennslyvania sections, steam coals have been selling all the way from $1.50 to $2.50, for spot lots throughout the month. The best grades, those in most limited supply, and where the greater part of the tonnage is taken under contracts, have sold in some instances, up to $3.00, but it is fair to say that any shrewd buyer over the month should have been able to have gotten all the coal that he needed, of good steam varieties, at from $1.85 to $2.25 per net ton.

This compares with $2.75 to 3.00 per net ton for these same grade coals, which were the prices prevailing last contract season. Thus the year has been a most profitable one for the consumer that failed to contract for his supplies, or to contract for only a minor portion of same, for prices have declined almost steadily since the Spring season up to the moment, without interruption. There has never before, perhaps, been a year, when coal has been

freer, for the production throughout the year, and even up until the moment, has been at a record breaking pace, and transportation has always been free, and in ninety nine out of a hundred cases, unusually prompt.

Thus if no radical reduction comes about in production over the three remaining weeks of the year, we will see a total output this year of well above 550,000,000 net tons, and perhaps the second, or in any event, the third record year's production of soft coal. Present production figures indicate a total production this year of around 140,000,000 tons over 1922, in which year, the union miners' strike, cut five and a half months production pretty low.

The only improvement in prices that have been noticeable during the month, has been those on slack coal. Before the Lake season closed, slack had got down as low as seventy five and eighty cents in certain instances. A great deal of coal was being screened, so that the lump could go up the Lakes before the close of navigation, and thus operators were frequently put in the position where they had to accept almost any offer to get slack unloaded from railroad cars.

Now the situation is so changed that slack is commanding mine-run prices in no few sections. Sales of slack are being made up $1.50, and $1.60, with the common quotation as this is written, of from $1.30 to $1.50.

In no few cases, buyers have been able to get stray cars of screened coal here and there, at practically slack prices, where the shipper has been caught with loaded cars and no sales in sight.

Mine run prices on the average Pennsylvania coals used in steam and coke making are but slightly changed. For eastern shipment, pool 9 sells at from $2.00 to $2.35; with pool 10 about fifteen to twenty five cents under.

Pool 11 is sold from $1.65 to $2.00, and unclassified coals are obtainable at about $1.50 to $1.75, these prices being for net tons. Coals in Pittsburgh region are quoted at $2.00 to $2.15 for steam; $1.40 to $1.60 for slack; $1.95 to $2.25 for lump.

West Virginia smokeless coals, which move now in heavy volume into New England, and also into New York, are selling on a basis of $4.10 to $4.50 at the piers, Hampton Roads, in gross tons.

These indicate mine prices well under $2.00 per net ton at the mines. In fact, lump prices for western shipment have recently been done as low as $2.00 for these high grade coals. The high volatile coals that move through Hampton Roads, are quoted at from $4.10 to $4.40, per gross ton, for run of mine. Pocahontas and New River slack has been sold at Hampton Roads at from $3.50 to $4.20 per gross ton.

At New York harbor, prices have been slightly higher. This has been due to the smaller offerings of coal. Daily car average at the piers has decreased from around 2,600 cars per day to 1,500, and in consequence there is a much smaller quantity of demurrage coal offering, and prices in consequence, have been better for pier sales. Pool 9 sells at $5.00 to $5.25 per gross ton, f. o. b. piers, with about 30 to 35 cents additional being paid for cargoes alongside docks or steamers.

Much newspaper space is being given to those who are wanted to predict a big strike of the union bituminous miners for April next year. This publicity has not contributed in anyway to increase the sale of coal so far as the trade can ascertain.

At the moment, factors look for very light demand over the remainder of the year. Many concerns will want to reach January 1st with as little coal on hand as possible, for inventory purposes. There are those who believe that January will see a much better buying demand for this reason. Moreover, there is a general indication that general business is better, and that coal requirements will eventually reflect this change.

INDIANAPOLIS, Ind.—January 22 next has been set as the date for the opening of the United Mine Workers of America annual convention to consider a new wage agreement in the bituminous coal fields of the United States during 1924.

An official call, signed by John L. Lewis, president; Philip Murray, vice-president, and William Green, secretary-treasurer, was sent out.

Delegates from all parts of the country expected to attend to bring resolutions, grievances and constitutional amendments for consideration of the convention,

CONNELLSVILLE COKE

Connellsville furnace coke for spot or prompt shipment ruled moderately steady at $4.00 during November, with frequent shading. The demand in the open market was very light, but production had been well curtailed in keeping with the blowing out of furnaces. Late in the month, as a result of the buying movement in pig iron, operators revised their views as to what they should obtain for first quarter. For a time it had looked as if even $4.00 might be shaded on first quarter contracts, but operators began talking $4.50. Two contracts were closed at $4.40, but this was for particularly good coke. Negotiations continued but furnaces have been slow to close and $4.25, if not less, has already been quoted on rather good coke. The furnaces represent that they cannot pay an advance on coke, having indeed sold pig iron during the buying movement at somewhat less than they were asking at the beginning of the movement, while but little iron has actually been sold at the higher prices now ruling.

Foundry coke for spot or prompt shipment ruled steady during November at $5.00 to $5.50. Late in the month two producers of particularly good brands put out first quarter prices, one at $6.50 and the other at $6.00. Several contracts were closed at the $6.00 price.

Analysis of Imports and Exports From The United States for the Month of October.

(Values in 1,000 dollars.)

Groups	— Month of October—				Ten months ending October			
	— 1922 —		— 1923 —		— 1922 —		— 1923 —	
Imports	Value	Per cent.	Value	Per cent.	Value	Per cent.	Value	Per cent.
Crude materials for use in manufacturing	137,652	40	92,451	30	926,932	37	1,188,477	37
Foodstuffs, crude, and food animals	37,464	11	34,057	11	265,939	10	287,224	9
Foodstuffs partly or wholly manufactured	30,289	9	48,067	15	329,429	13	466,362	15
Manufactures for further use in manufacturing.	65,674	19	57,503	19	436,857	17	614,576	19
Manufactures ready for consumption	71,746	21	73,554	24	552,104	22	641,188	20
Miscellaneous	2,279	..	2,734	1	15,892	1	14,693	..
Total imports	345,104	100	308,366	100	2,527,153	100	3,212,520	100
Exports								
Crude materials for use in manufacturing	133,700	37	151,098	38	723,679	24	860,348	26
Foodstuffs, crude, and food animals	40,796	11	21,750	6	398,975	13	228,031	7
Foodstuffs partly or wholly manufactured	47,921	13	50,969	13	487,155	16	474,764	15
Manufactures for further use in manufacturing.	32,940	9	45,977	12	368,013	12	463,886	14
Manufactures ready for consumption	110,190	30	123,447	31	1,068,177	35	1,243,880	38
Miscellaneous	637	..	573	..	5,293	..	4,895	..
Total domestic exports	366,186	100	393,814	100	3,051,292	100	3,275,804	100
Foreign exports..	4,533	..	7,009	..	56,158	..	65,531	..
Total exports	370,719	..	400,823	..	3,107,450	..	3,341,335	..

EXPORTS OF IRON AND STEEL PRODUCTS FROM THE U. S.

Value of tonnage and non-tonnage.

	*1923	*1922	1921
Jan.	$14,866,090	$15,141,083	$137,803,395
Feb.	14,865,590	12,950,603	101,205,061
Mar.	14,543,155	18,836,718	67,870,739
April	20,146,346	17,549,618	49,609,605
May	22,681,660	17,749,475	41,365,886
June	21,242,193	18,649,816	39,975,035
July	21,582,626	14,611,858	27,639,787
Aug.	19,402,293	13,963,749	27,647,816
Sept.	19,871,060	14,380,851	26,740,228
Oct.	19,244,049	14,626,411	29,706,437
Nov.	.....	14,249,434	28,543,142
Dec.	.....	16,668,116	29,502,448

* Excluding machinery.

1922..	$ 188,841,433	1916..	$871,372,322
1921..	607,427,146	1915..	390,897,123
1920..	1,112,904,802	1914..	199,861,684
1919..	968,575,142	1913..	293,934,160
1918..	1,035,291,736	1912..	289,128,420
1917..	1,240,984,979	1911..	249,656,411

Tonnage Lines.

(Gross tons.)

	1923	1922	1921	1920
Jan.	123,190	160,920	547,394	333,601
Feb.	133,902	133,975	393,328	308,185
Mar.	163,920	208,843	230,635	417,216
April	177,471	198,830	162,592	395,120
May	203,389	230,062	104,072	420,359
June	171,183	212,295	119,081	402,707
July	168,558	157,169	86,523	458,866
Aug.	161,426	145,640	75,827	431,484
Sept.	172,499	129,475	95,169	409,200
Oct.	152,511	132,924	106,582	452,015
Nov.	.....	127,782	122,290	434,297
Dec.	.....	150,170	134,415	498,765

Yearly totals.

1922	1,986,297	1916	6,105,881
1921	2,213,042	1915	3,532,606
1920	4,961,851	1914	1,549,554
1919	4,239,837	1913	2,745,535
1918	5,338,037	1912	2,947,596
1917	6,441,760	1911	2,187,724

IMPORTS OF IRON ORE INTO THE UNITED STATES.

	1923	1922	1921	1920
Jan.	205,532	19,433	82,424	88,881
Feb.	143,702	10,016	47,466	100,105
Mar.	166,626	12,013	26,483	108,643
April	171,459	2,710	35,645	88,670
May	263,792	29,707	58,704	103,325
June	277,380	133,817	8,424	104,364
July	439,367	166,711	7,040	28,846
Aug.	267,677	171,142	24,570	174,169
Sept.	261,609	138,838	4,954	73,675
Oct.	236,442	*123,407	5,838	141,026
Nov.	.....	165,648	12,065	139,854
Dec.	.....	167,221	2,155	117,898

Yearly totals.

1922	1,140,463	1916	1,325,736
1921	315,768	1915	1,341,281
1920	1,273,456	1914	1,350,588
1919	476,461	1913	2,594,770
1918	787,468	1912	2,104,576
1917	971,663	1911	1,811,732

* Sept. 22 to Oct. 31.

BITUMINOUS COAL PRODUCTION

(Net tons of 2,000 lbs.)

	1923.	1922.	1921.
Jan. ...	50,178,000	37,604,000	40,270,000
Feb. ...	42,160,000	40,980,000	30,851,000
Mar.	46,802,000	50,167,000	30,392,000
April ..	42,564,000	15,700,000	27,553,000
May ...	46,076,000	20,601,000	33,330,000
June ..	45,490,000	22,309,000	33,896,000
July ...	45,126,000	17,003,000	30,385,000
Aug. ...	48,864,000	27,358,000	34,538,000
Sept. ..	46,700,000	39,510,000	35,127,000
Oct. ...	48,700,000	45,141,000	43,733,000
Nov. ...	43,100,000	45,303,000	36,020,000
Dec. ...	.....	44,500,000	30,975,000
Total	413,960,000	405,944,000	407,000,000

CONNELLSVILLE COKE.

Spot for prompt, per net ton f.o.b. ovens.

	— Furnace —			— Foundry —		
	1923.	1922.	1921.	1923.	1922.	1921
Jan.	8.30	2.85	5.10	9.25	4.00	6.75
Feb.	7.30	3.10	4.80	8.50	4.15	6.15
Mar.	7.35	3.38	4.43	8.60	4.50	5.63
Apr	6.25	4.44	3.60	7.80	5.21	5.15
May	5.25	6.50	3.40	6.50	6.75	5.10
June	5.00	7.50	3.12	5.85	7.85	4.67
July	4.60	11.35	2.95	5.60	11.70	4.20
Aug.	4.65	13.35	2.95	5.55	15.00	4.20
Sept.	4.60	11.50	3.26	5.90	13.25	4.34
Oct.	3.85	9.70	3.35	5.30	11.90	4.40
Nov.	3.90	7.35	3.15	5.25	8.70	4.17
Dec.	....	7.75	2.90	....	8.15	4.00
Av.	....	7.40	3.58	....	8.43	4.90

BRITISH IRON AND STEEL OUTPUT.

Pig Iron—(Gross tons).

	1923	1922	1921
Jan.	567,900	288,000	642,100
Feb.	543,400	300,100	463,600
March ...	633,600	389,800	386,000
April	652,200	394,300	60,300
May	714,200	407,900	13,600
June	692,900	369,200	800
July	655,100	399,100	10,200
Aug.	599,800	411,700	94,200
Sept.	558,600	430,300	158,300
Oct.	592,600	481,500	235,500
Nov.	.....	493,900	271,800
Dec.	.....	533,700	275,000
Total ...	.....	4,899,500	2,611,400

Steel Ingots and Castings.

	1923	1922	1921
Jan.	624,300	327,500	493,400
Feb.	707,100	418,800	483,500
March ...	802,500	549,400	359,100
April	749,400	404,200	70,600
May	821,000	462,300	5,700
June	767,700	400,200	2,700
July	624,300	473,100	117,200
Aug.	582,700	520,800	434,100
Sept.	695,100	555,900	429,300
Oct.	702,100	565,200	405,400
Nov.	.....	600,800	442,800
Dec.	.....	546,100	381,000
Total ...	.....	5,831,900	3,624,800

COPPER IN NOVEMBER

Copper production is exceeding consumption by about 10%.

Production of refined metal this year bids fair to reach the impressive total of 2,293,000,000 pounds. At the end of November the total output was approximately 2,073,000,000 pounds. Notwithstanding this heavy production, stocks of refined metal at the end of the year will probably be very slightly in excess of what they were at the beginning of the year. This would indicate that deliveries into domestic and foreign consumption also have been unusually heavy.

The most important development is the continued heavy consumption in the United States. At the beginning of the second half of the year the indication was for a decided decrease in American consumption, in fact there was a decrease in melting in the United States as compared with the first half of the year. Taking the year as a whole, however, the probability is that American consumption averaged only a little under 119,000,000 pounds a month. In the first half of the year the average was slightly in excess of 123,000,000 pounds monthly; in the second half the average was a little over 114,500,000 tons, December estimated.

Great Home Consumption.

Deliveries of refined copper to home consumers this year will not be far from 1,426,000,000 pounds. This indicates greater consumption than any year since 1918. It is also smaller than in 1916, both war years but apparently it was larger than 1917, another war year. In other words, consumption in the United States this year was the largest of any peace year in the history of the industry. It must not be lost sight of, however, that in the last four months the average monthly consumption in the United States has been reduced to 112,000,000 pounds. Even so, the total is impressive as compared with average monthly consumption in both post and pre-war years.

Exports.

It would not be surprising if consumption of American copper in Europe should have fallen off as compared with preceding years, but on the contrary the indication now seems to be that exports of wrought and unwrought copper from the United States this year will have been exceeded by only the war year of 1917. Up to December 1st, November estimated, exports of wrought and unwrought copper amounted to nearly 729,000,000 pounds and exports from both North and South America were approximately 787,700,000 pounds.

After making deductions for finished copper exported from this country the total would be approximately 669,000,000 pounds.

Impressive Imports.

The most startling development of the year has been enormous imports, largely from South America. In fact, imports from all countries into the United States this year will have equalled exports, after allowance has been made for foreign shipments of finished products included in the export total. Up to December 1st imports into the United States were very close to 628,000,000 pounds and for the year they are likely to be 698,000,000 pounds of which probably 468,000,000 pounds were refined.

Smelter Output.

Smelter output in North and South America up to December 1st is estimated 2,193,000,000 pounds. In the first half of this year, while refined stocks were decreasing, smelter stocks were being increased and by July 1st smelter stocks had increased by 100,000,000 pounds. On the other hand, during the

COPPER PRICES IN NOVEMBER

Day	New York — Lake.	New York — Electro.	New York — Cast.	London — Stand.	London — Electro.
				£ s. d.	£ s. d.
1	13.00	12.65	12.37½	60 10 0	64 10 0
2	13.00	12.60	12.37½	60 10 0	64 5 0
5	13.00	12.62½	12.37½	60 15 0	64 0 0
6	.....	.....	.....	61 2 6	64 10 0
7	13.00	12.70	12.43¾	61 5 0	64 10 0
8	13.25	12.85	12.62½	61 17 6	65 5 0
9	13.50	13.06¼	12.75	62 10 0	66 0 0
12	13.56¼	13.18¾	12.93¾	62 15 0	68 0 0
13	13.68¾	13.25	13.00	63 5 0	68 10 0
14	13.68¾	13.18¾	13.00	62 12 6	68 0 0
15	13.62½	13.12½	13.00	62 5 0	68 0 0
16	13.50	13.06¼	12.87½	61 5 0	67 10 0
19	13.50	12.87½	12.75	61 7 6	68 0 0
20	13.50	12.93¾	12.75	61 0 0	67 0 0
21	13.25	12.68¾	12.50	61 0 0	66 10 0
22	13.25	12.68¾	12.50	60 12 6	66 10 0
23	13.25	12.62½	12.50	60 17 6	66 0 0
26	13.25	12.75	12.56¾	61 5 0	66 0 0
27	13.75	12.95	12.75	62 7 6	67 0 0
28	13.75	13.00	12.87½	62 12 6	67 10 0
29	.....	.....	.....	62 5 0	67 10 0
30	13.25	12.95	12.87½	62 5 0	67 10 0
High	13.75	13.30	13.00	63 5 0	68 10 0
Low	13.00	12.50	12.37½	60 10 0	64 0 0
Average.	13.34	12.89	12.69	61 12 11	66 9 7

second half of the year, while refined stocks were increasing, blister stocks were decreasing, probably to the extent of 150,000,000 pounds. That is, blister stocks during the year will have increased about 50,000,000 pounds.

November Developments.

Taking up November developments independently, in the absence of official figures, it is estimated that refined output was between 205,000,000 and 210,000,000 pounds and total deliveries estimated 195,000,000 pounds. This would mean an increase of between 10,000,000 and 15,000,000 pounds in refined stocks, bringing them to a little less than 280,000,000 pounds on December 1st. According to the Copper Export Association such stocks on the first of the year were 298,000,000 pounds, that is, in America and in Europe. The final report of the U. S. Geological Survey placed United States refined stocks on January 1st, 1923 at 216,000,000 pounds against 277,000,000 pounds when the preliminary report was issued. At the same time final reports of blister stocks on January 1st this year were 361,000,000 pounds. It should be kept in mind, however, that these figures refer to blister stocks in the United States alone.

November Sales Large.

A buying movement of considerable proportion was developed in the first two weeks of November after prices of electrolytic had receded to 12.62½c. a pound delivered. The relatively low price, apparently, had more influence with consumers at home and abroad than the heavy output. As a result of the increased demand it is estimated that sales aggregating between 200,000,000 and 225,000,000 pounds, were made for domestic shipment and for export.

The great bulk of the export business was done through the Copper Export Association. The increased buying brought about an advance of ⅞c to 1c a pound by the middle of the month.

Afterwards prices reacted, declining to 12.87½c by November 23rd, since which time the market has recovered to 13.12½c to 13.25c delivered which were the prices at the close of the month. Relatively few sales were made in the second half of the month.

There was considerable speculative activity in refinery positions early in the month, especially for delivery in the second quarter of 1924.

(Continued on page 640)

Dallas Brass & Copper Co.

Manufacturers of

Brass and Copper Products

Prompt Mill Deliveries

Prompt Shipments From Warehouses

CLEVELAND CHICAGO DETROIT

WATERBURY COPPER AVERAGES

	1923.	1922.	1921.	1920.	1919.
Jan. ..	14.87½	13.87½	13.75	19.50	23.00
Feb. ..	15.75	13.37½	13.50	19.12½	18.00
Mar. ..	17.25	13.12½	12.62½	18.87½	15.50
Apr. ..	17.12½	13.00	12.75	19.12½	15.50
May ..	16.12½	13.37½	13.12½	19.00	16.37½
June ..	15.25	14.00	13.12½	18.50	17.75
July ..	15.00	14.12½	12.87½	19.00	22.00
Aug. ..	14.50	14.12½	12.25	18.75	23.00
Sept. .	14.00	14.25	12.37½	18.75	22.50
Oct. ..	13.25	14.25	13.12½	16.87½	22.25
Nov. ..	13.37½	14.12½	13.37½	15.25	21.00
Dec. ..	.....	14.50	13.87½	14.25	18.75
Av. ...	.....	13.84	13.06	18.06	19.63½

Annual Averages.

1918.....	24.75	1913.....	15.83
1917.....	30.11	1912.....	16.71
1916.....	28.85	1911.....	12.75
1915.....	18.94	1910.....	13.13
1914.....	13.91	1909.....	13.41

IMPORTS OF COPPER.

As compiled by the New York Metal Exchange and reduced to fine copper, in tons of 2,240 lbs.

	1923.	1922.	1921.	1920.
Jan.	16,500	5,500	17,500	16,500
Feb.	17,000	10,000	18,000	20,000
Mar.	23,500	15,000	10,000	17,500
April	15,500	16,000	15,500	12,000
May	34,000	12,000	7,000	23,000
June	28,500	19,000	9,000	22,000
July	23,000	19,500	14,000	12,000
Aug.	37,000	21,000	10,000	13,000
Sept.	21,000	25,000	10,500	12,500
Oct.	.....	18,000	14,500	14,500
Nov.	.....	33,000	11,000	16,000
Dec.	.....	26,000	14,000	17,500
Totals ...	.....	220,000	151,000	196,500

EXPORTS OF COPPER.

As compiled by the New York Metal Exchange from Custom House returns, in tons of 2,240 lbs.

	1923.	1922.	1921.	1920.
Jan.	23,409	24,679	24,068	21,804
Feb.	21,643	22,910	27,748	25,700
Mar.	28,284	35,851	17,151	39,236
April	28.225	28,367	18,397	28,644
May	25,911	27,894	15,736	37,090
June	27,017	29,191	22,339	25,581
July	27,516	28,584	22,774	20,430
Aug.	30,458	26,889	19,110	20,121
Sept.	30,970	25,144	28,343	10,751
Oct.	39,650	22,681	22,934	10,073
Nov.	.....	24,727	32,407	16,954
Dec.	.....	22,201	27,394	18,304
Total	.....	319,118	278,401	274,688

Annual Totals.

1919	227,169		
1918	328,844	1913	382,810
1917	493,256	1912	327,965
1916	327,310	1911	336,801
1915	270,704	1910	301,935
1914	360,229	1909	301,657

LAKE COPPER PRICES

Average prices in N. Y.—delivered.

	1923.	1922.	1921.	1920.	1919.
Jan. ...	14.92	13.76	13.53	19.76	21.75
Feb. ...	15.76	13.24	13.33	19.09	17.87
Mar. ...	17.26	13.03	12.58	18.87	15.48
April ..	17.13	12.91	12.89	19.05	15.73
May ...	16.12	13.42	13.12	18.85	16.30
June ...	15.24	13.97	13.04	18.55	17.93
July ...	14.95	14.07	12.75	18.83	22.08
Aug. ...	14.39	14.09	12.11	18.72	22.96
Sept. ..	13.95	14.19	12.23	18.53	22.48
Oct.	13.26	14.16	13.01	16.87	21.94
Nov. ...	13.34	14.07	13.30	14.97	20.49
Dec. ...	.....	14.46	13.80	14.01	18.88
Average	.....	13.78	12.98	18.01	19.49

Annual Averages.

1918	24.68	1913	15.70
1917	29.18	1912	16.58
1916	28.17	1911	12.71
1915	17.64	1910	13.12
1914	13.61	1909	13.39

ELECTROLYTIC COPPER PRICES

Average prices in N. Y.—f.o.b. refinery.

	1923.	1922.	1921.	1920.	1919.
Jan. ...	14.66	13.60	12.85	19.02	20.00
Feb. ...	15.50	12.97	12.79	18.61	16.91
Mar. ...	16.95	12.84	12.23	18.36	15.01
April ..	16.81	12.71	12.54	18.54	15.40
May ...	15.63	13.29	12.83	18.28	16.01
June ...	14.88	13.71	12.76	17.97	17.65
July ...	14.59	13.90	12.35	18.61	21.71
Aug. ...	14.05	13.96	11.76	18.44	22.22
Sept. ..	13.60	13.88	12.10	18.04	21.95
Oct.	12.81	13.80	12.75	16.30	21.50
Nov. ...	12.89	13.79	13.16	14.39	19.96
Dec. ...	.....	14.22	13.67	13.48	18.48
Average	.....	13.55	12.65	17.50	18.90

Annual Averages.

1918	24.68	1913	15.52
1917	29.19	1912	16.48
1916	28.46	1911	12.55
1915	17.47	1910	12.88
1914	13.31	1909	13.11

CASTING COPPER PRICES

Average prices in N. Y.—f.o.b. refinery.

	1923.	1922.	1921.	1920.	1919.
Jan. ...	14.30	12.96	12.61	18.81	18.48
Feb. ...	15.15	12.61	12.45	18.21	16.45
Mar. ...	16.64	12.54	11.83	18.11	14.82
April ..	16.60	12.46	11.82	18.40	15.06
May ...	15.45	12.84	12.24	18.16	15.49
June ...	14.57	13.33	12.08	17.65	17.17
July ...	14.30	13.34	11.68	18.12	21.10
Aug. ...	13.81	13.43	11.43	18.00	21.71
Sept. ..	13.41	13.39	11.75	17.76	21.28
Oct.	12.55	13.39	12.43	16.01	20.66
Nov. ...	12.69	13.40	12.53	14.12	19.37
Dec. ...	.....	13.81	12.97	13.12	18.21
Average	.....	13.13	12.15	17.21	18.32

Annual Averages.

1918	24.68	1914	13.18
1917	27.64	1913	15.33
1916	26.51	1912	16.29
1915	16.76	1911	12.42

Prices of the latter position advanced from 13c to 13.37½c and later receded to 13.12½c. Nearby positions were sold by second hands at the beginning of the month at 12.65c to 12.70c, advancing to 13.25c by the middle of the month and subsequently receded to 12.90c to 13.00c, at which prices some business was done, toward the close of the month. Lake copper remained quiet throughout the month at a fraction over prices asked for electrolytic. Casting copper sold at 12.37½c f.o.b. refinery early in the month advancing to 13c later with considerable business done for export to the Orient. Subsequently, prices receded to 12.50c but recovered to 12.87½c f. o. b. refinery at the close of the month.

Copper Export Association sold 51,000,000 pounds of copper at an average price of 12.94 cents a pound during the first three weeks of November, while during the year up to November 21st, sales amounted to 350,000,000 pounds at an average price of 14.45 cents a pound.

Total exports from all sources for the first ten months of the current year amounted to 663,900,000 pounds. Of the 165,302,000 pounds taken by France the association supplied 100,000,000 pounds. It also shipped 53,000,000 pounds of the 136,350,000 pounds taken by England, 60,000,000 pounds of the 153,000,000 supplied to Holland and Germany and 23,000,000 pounds of the 77,117,000 pounds purchased by Italy.

COPPER AND BRASS PRODUCTS

A better sentiment was developed in finished products made from copper, brass, bronze and nickel silver in November. In the first half of the month prices with the exception of those for seamless tubing were advanced ¾c. a pound on all rolled, drawn and cast manufacturers. Seamless tubing was advanced ½c. per pound. The firmer tone reflected in higher prices was the result of higher prices for unwrought copper. Very heavy purchases of unwrought copper were made during the first half of November. Buying of finished products improved slowly but steadily in the first two weeks. Subsequently buying was moderate in volume. There was an absence of the excitement and feverishness which characterized trading in unwrought metal

BRASS AND COPPER PRODUCTS.

The last two price lists issued follow:

COPPER PRODUCTS.

	Nov. 7	Nov. 9
Sheet copper	20½	20¾
Copper bottoms	29	29¼
Copper in rolls	19	19¼
Brush copper	22	22¼
Sawed copper	21¾	22
Drawn copper shapes	19½	19¾
Commutator copper	20¾	21

BRASS PRODUCTS.

Sheet Metal.

High brass	17¼	17½
Low brass	19	19¼
Rich low brass	19½	19¾
Commercial bronze and gilding	20¾	21
Best spring drawing and spinning brass	18¼	18½

Wire.

High brass	17¾	18
Low brass	19½	19¾
Commercial bronze and gilding	20¼	20½
Best spring and brazing brass	18¾	19

Rods.

High brass (free turning)	15	15¼
Low brass	19¾	20
Commercial bronze	21½	21¾

Brazed Tubes.

Brass	25¼	25½
Copper and commercial bronze	30½	30¾
Open seam brass	25¼	25½
Open seam copper and commercial bronze	30½	30¾

Seamless Tubes.

	Oct. 8	
High brass	22½	22
Low brass	24½	24
Commercial bronze	25½	25
Copper	24	23½

NICKEL SILVER.

	Nov. 9	
10% grade A sheet metal	24¾	25
15% " " " "	26¼	26½
18% " " " "	27½	27¾
25% " " " "	37¾	38
5% grade B sheet metal	23	23¼
10% " " " "	24½	24¾
12% " " " "	25½	25¾
15% " " " "	26	26¼
18% " " " "	27	27¼
25% " " " "	37½	37¼
5% wire and rod	25	25¼
10% " " "	28	28¼
12% " " "	29¾	30
15% " " "	31½	31¾
18% " " "	34½	34¾

but the rise in finished products was more substantial. Subsequently when prices of unwrought copper dropped from 13.50c. to 13.00c and even 12.87½c. those for wrought copper and brass remained steady at the advance which had been established in the first half of the month.

On November 7th the American Brass Company announced an advance of ¼c. a pound in prices—with the exception of seamless tubing. This was the first revision in prices made by the largest interest since October 26th this year.

All previous revisions had been downward since early April. A long succession of declines had occurred carrying the market down 5.00c. to 6.00c. a pound when the reverse movement began, November 7th. Another advance of ¼c. a pound was established November 9th, the only exception being that seamless brass, copper and bronze tubing was advanced ½c. a pound, making the advance on all finished products ½c. a pound since October 26th. A third advance was announced November 13th.

All products, with the exception of seamless tubing, were advanced ¼c. a pound. The November upward movement ceased about the middle of the month, after which time unwrought copper receded ½c. a pound, putting the previous advance in prices of finished products in a very vulnerable position. In fact prices of some products, notably wire, have since receded ¼c a pound or more.

Small change was made in plant operations in the Connecticut Valley or elsewhere as compared with the preceding month. It is estimated that the industry as a whole has been operating at an average rate of 75% to 80% of capacity. In a few departments a much better rate of capacity has been employed. It is notable that the enormous increase in sales of unwrought copper were not fully reflected in buying of finished products.

Brass and copper mills are beginning to feel the effect of the light supply of scrap. Most all of the war surplus scrap metal has been consumed and next year finishing plants will be more dependent upon virgin copper than at any time in years. The only appreciable amount of war scrap still in existence is that held by the French Government but this supply is withheld from the market. Since the Armistice about 300,000 tons of war scrap have gone into consumption.

The relation between suply of and demand for unwrought copper is not likely to change radically in the near future. Apparently current production is still about 10% greater than current consumption. Considering the enormous world output, it is surprising that surplus stocks have not increased more rapidly. It is estimated that United States consumers of unwrought copper today are using between 110,000,000 and 112,000,000 pounds a month, but the average monthly consumption for the year was considerably higher because of the unusual activity in the first four months of 1923.

TIN IN NOVEMBER

Sensational speculative operations on the part of the "bulls" in London coupled with a declining and sharply fluctuating sterling exchange rendered tin trading during November intensely exciting at times and certainly very interesting.

The persistent effort abroad to force prices higher showed no abatement when November opened, and except for occasional set-backs during the month caused almost entirely by profit-taking, the market advanced drastically, London establishing new high price levels for the year. However, the full measure of the advance in London was counteracted to a degree in the local market by the weak condition of sterling exchange, although prices here reflected the strong bullish sentiment evidenced abroad.

Opening at 41.87½c for Straits the market reached 43.37½c on November 7th, due to heavy buying by English and American operators, eased off the following day in sympathy with a reaction in London caused by profit-taking although traders here purchased freely on the decline. The continued weakness of sterling exchange which constantly proved a disturbing factor throughout the month was responsible for lowering the price of Straits in the local market to 43.00c on November 9th but the subsequent sharp advances in London carried prices here up to 44.37½c on November 13th.

Fresh weakness in sterling and a reaction in London sent the price of Straits back to 42.75c on November 15th, follow-

ing which the market advanced virtually every day, until the month closed at 47.25c, London, through very large speculative trading being the leader and the main stimulus to the drastic advances that occurred. The market in London opened at £208 12s 6d and reached £220 7s 6d by the middle of November and during the last part of the month advanced to £236 10s 0d. Briefly an advance took place during November of 5½c per pound in New York, and £29 per ton in London, an upward movement which closely parallels that which occurred earlier in the year, to be exact during February when the advance in New York amounted to 4½c per pound and £31 in London.

A notable feature of the month's markets is that although the price in London established a new high level for the year on November 28th at £236 15s, Straits in New York on the same date, although quoted at the peak price in the movement, i.e., 47.50c, was 4c below the year's highest price, 51.50c established March 15th. This of course is explained by the extremely weak condition of sterling exchange which opened at $4.47⅞ and closed at $4.33¼ showing a net loss for the month of almost 15 points.

The present advance in tin, although exaggerated in speculative operations in London, is on very much sounder grounds than it was in October.

The American deliveries of foreign tin during November amounted to 6,785 tons, according to report issued by the New York Metal Exchange as follows:

Atlantic ports	6,600 tons
Pacific ports	185 tons
Total	6,785 tons

This is an increase of 1,245 tons over October and brings the total for the 11 months up to 65,344 tons as against 53,590 tons during the corresponding period in 1922 and 54,289 tons in 1918, which was the previous high record.

The monthly deliveries of tin in the United States, exclusive of domestic refined tin, in tons of 2,240 pounds were as follows over the past five years:

	1923.	1922.	1921.	1920.	1919.
Jan. ...	6,625	4,275	1,555	3,910	1,850
Feb. ...	6,185	3,215	1,585	5,200	2,450
Mar. ...	6,634	6,030	1,683	5,130	2,070
Apr. ...	6,775	4,995	1,590	3,305	36
May ...	6,035	4,740	1,225	3,550	20
June ..	5,410	5,130	1,590	6,500	68
July ...	5,305	4,590	1,525	5,530	132
Aug. ...	5,510	5,150	3,320	3.745	4,345
Sept. ..	4,540	5,050	2,605	4,860	4,825
Oct.	5,540	5,603	2,280	3,415	2,875
Nov. ...	6,785	4,812	3,250	3,395	6,665
Dec. ...	.....	4,870	3,710	2,580	6,965
Total ..	65,344	57,460	25,918	51,120	32,301

Total annual deliveries including American refined tin have been a follows:

1914	41,700	tons
1915	48,750	"
1916	61,816	"
1917	62,730	"
1918	68,193	"
1919	43,897	"
1920	65,633	"
1921	34,699	"
1922	66,640	"
1923 (11 months) ..	70,500*	"

* This is calculated on production of 750 tons of American refined tin per month, January to July inclusive when production vitually ceased.

The stocks of tin reported in New York on November 30th amounted to 1,072 tons. On October 31st, the stocks amounted to 3,677 tons so that there was a decrease during the month of 2,603 tons.

The new supplies of tin during November amounted to 9,494 tons as against total deliveries of 10,542, causing a decrease in the world's visible supply of 1,047 tons. The world's visible now stands at 19,520 tons, 6,420 tons below what it was a year ago but about 800

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TIN PRICES IN NOVEMBER

Day	New Straits	York 99%.	London Stand. £ s. d.	London Straits. £ s. d.	Singapore Straits. £ s. d
1	41.87½	41.37½	208 12 6	209 12 6	206 0 0
2	41.62½	41.25	208 5 0	209 5 0	207 10 0
5	41.87½	41.50	208 5 0	209 0 0	207 10 0
6	.....	.....	213 0 0	213 15 0	209 10 0
7	43.37½	43.00	216 0 0	216 15 0	214 10 0
8	43.25	42.87½	214 5 0	215 5 0	217 5 0
9	43 .0	42.75	214 10 0	215 10 0	217 0 0
12	43.50	43.12½	217 0 0	218 0 0	220 0 0
13	44.37½	44.00	220 0 0	222 0 0	221 0 0
14	43.75	43 37½	220 7 6	221 7 6	222 15 0
15	42.75	42.50	217 0 0	218 0 0	220 10 0
16	42.87½	42.67½	218 5 0	219 5 0	219 0 0
19	43.62½	43.25	220 0 0	221 0 0	221 5 0
20	44.12½	43.75	221 5 0	221 15 0	222 15 0
21	44.87½	44.50	223 7 6	223 17 6	224 10 0
22	44.50	44.12½	223 0 0	224 0 0	227 10 0
23	44.62½	44.25	222 10 0	223 10 0	225 10 0
26	46.62½	46.12½	231 0 0	232 0 0	231 0 0
27	46.75	46.25	231 15 0	232 15 0	235 0 0
28	47.50	47.00	236 15 0	237 15 0	238 0 0
29	.....	.....	233 0 0	234 0 0	240 10 0
30	47.25	46.75	236 10 0	237 15 0	235 10 0
High	47.50	47.00	236 15 0	237 15 0	240 10 0
Low	41.62½	41.25	208 5 0	209 5 0	206 0 0
Av'ge	44.11	43.72	220 13 4	221 12 10	222 0 0

MONTHLY TIN STATISTICS

As published by the New York Metal Exchange in tons of 2,240 pounds:

	Nov. 1923.	Oct. 1923.	Nov. 1922.
Supplies—			
Straits	5,605	6,655	6,295
Australian	200	130	40
Banka and Billiton	1,266	787	1,489
Chinese	928	534	1,764
Standard	1,496	1,487	1,056
	9,495	9,593	10,644
Deliveries—			
U. K. all kinds	1,473	1,439	1,819
U. S. A. all kinds	6,785	5,540	4,812
Continent, all kinds	2,284	1,911	1,578
	10,542	8,890	8,209
Decrease in total visible supply	1,047	*703	*2,435
Stocks—			
U. K. all kinds	4,601	3,024	5,630
U. S. A. all kinds	1,072	3,677	2,699
Continent, all kinds	1,793	1,887	2,403
	7,466	8,588	10,732
Afloat—			
U. K. all kinds	1,985	2,540	1,173
U. S. A. all kinds	7,926	7,914	11,106
Continent, all kinds	2,143	1,525	2,950
	12,054	11,979	15,229
Tot. visible supply	19,520	20,567	25,961

STRAITS TIN PRICES.

Average prices of Straits tin for prompt delivery in New York.

	1923.	1922.	1921.	1920.	1919.
Jan.	39.17	32.11	36.11	62.89	72.50
Feb.	42.03	30.82	32.47	60.00	72.00
Mar.	48.65	29.17	28.85	61.99	71.75
April	45.87	30.65	30.41	62.20	72.26
May	43.16	30.97	32.52	55.07	71.94
June	41.00	31.54	29.57	48.62	71.20
July	38.48	31.82	27.69	49.37	70.39
Aug.	39.39	32.43	26.40	47.69	63.78
Sept.	41.63	32.40	26.73	44.62	55.81
Oct.	41.86	34.64	27.74	40.64	55.62
Nov.	44.11	36.72	29.02	37.02	54.17
Dec.	.....	37.68	32.49	34.15	55.06
Average	.....	32.58	30.00	50.36	65.54

Yearly Averages.

1919	65.54	1914	35.70
1918	86.80	1913	44.32
1917	61.65	1912	46.43
1916	43.48	1911	42.68
1915	38.66	1910	34.27

TIN DELIVERIES IN UNITED STATES

Monthly deliveries of tin in United States, exclusive of domestic refined tin, in tons of 2,240 pounds.

	†1923.	1922.	1921.	1920.	1919.
Jan.	6,625	4,275	1,555	3,910	1,850
Feb.	6,185	3,215	1,585	5,200	2,459
Mar.	6,634	6,030	1,683	5,130	2,070
April	6,775	4,995	1,590	3,305	36
May	6,035	4,740	1,225	3,550	20
June	5,410	5,130	1,590	6,500	68
July	5,305	4,590	1,525	5,530	132
Aug.	5,510	4,150	3,320	3,745	4,345
Sept.	4,540	5,050	2,605	4,860	4,825
Oct.	5,540	5,603	2,280	3,415	2,875
Nov.	6,785	4,812	3,250	3,395	6,665
Dec.	.....	4,870	3,710	2,580	6,965
Total	.....	57,460	25,918	51,120	32,301

VISIBLE SUPPLY OF TIN

World's visible supply of tin at end of each month in tons of 2,240 pounds.

	†1923.	1922.	1921.	1920.
Jan.	25,765	26,216	18,994	21,056
Feb	25,157	25,047	17,074	21,586
Mar.	24,622	22,353	16,073	18,305
April	22,116	22,017	15,670	19,342
May	22,187	22,910	18,352	20,976
June	21,297	23,566	17,968	18,851
July	20,019	21,502	20,316	18,546
Aug.	18,754	24,176*	19,358	19,858
Sept.	19,864	22,879*	21,189	18,096
Oct.	20,567	22,902	23,349	19,964
Nov.	19,520	25,286	22,806	19,823
Dec.	.....	24,930	25,220	19,410
Average	.....	23,649	19,697	19,726

* Includes current shipments of Banka and Chinese to U. S.

Annual Averages.

1919	12,890	1914	14,907
1918	13,894	1913	12,377
1917	18,803	1912	13,207
1916	18,585	1911	16,404
1915	15,208	1910	18,815

TIN SHIPMENTS FROM STRAITS

(Tons of 2,240 lbs.)

	†1923.	1922.	1921.	1920.	1919.
Jan.	6,255	5,515	1,055	3,910	3,340
Feb.	4,655	3,640	240	4,810	2,860
Mar.	6,020	4,985	915	2,795	2,254
April	4,490	5,350	1,800	3,872	1,127
May	5,535	6,420	3,667	4,930	1,704
June	5,390	6,505	1,425	4,261	1,629
July	5,025	4,035	3,975	3,865	7,302
Aug.	5,190	5,855	3,165	3,798	8,829
Sept.	6,415	4,050	5,300	4,529	5,465
Oct.	6,655	5,650	4,525	3,340	4,431
Nov.	5,605	6,145	4,065	2,630	4,135
Dec.	.....	4,635	5,920	2,225	6,677
Total	.....	62,785	36,052	44,965	49,763

Annual Totals

1918	*55,000	1914	63,093
1917	62,366	1913	62,550
1916	61,587	1912	59,318
1915	66,517	1911	55,470

† Note — London Metal Exchange statistics * Estimated.

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tons above the low point reached on August, 31st, when it stood at 18,754 tons.

Foreign mail advices report the tin plate trade is extremely active and prosperous, and Wales is today using tin practically to her full mill capacity. The Continent, too, including Germany, is continually in evidence, and the consumption of tin in the tin plate trade there, and elsewhere, certainly promises steady expansion, which would be accelerated if only stable political and economic conditions could be assured.

Tin consumption in America is also very large. Tin mills are running at virtually full capacity, the leading interest having enough orders on its books to keep it running at 90% until next July. Manufacturers of automotive products too, appear to be quite active, and consumption of tin in this quarter is believed to be also a record high.

However, since the market crossed 45.00c there has been almost a complete absence of demand from consumers who consider that the recent advance is far more rapid than is justified by conditions of supply and demand. Regarding it as a gambling operation, they appear willing to gamble that they will do better by waiting than by attempting to buy at this time when there is a huge speculative demand. Having received deliveries of 6,785 tons during November, the largest deliveries of foreign tin in any month since December, 1919, they are not pressed for supplies and therefore can wait for the market to quiet down.

The basis for the "bull" movement in London is a sound one, namely that the consumption of tin so far this year has been roughly about 1,000 tons per month greater than the production, which has been taken care of by sales from the Malay and Dutch Governments from their stocks, which figure as invisible stocks.

The present invisible stocks of tin held by these interests are figured at being down now to about 10,000 tons.

The liquidation of the invisible stocks in the Far East is being carried on to the full extent permitted by the Bandoeng agreement, and for another year the current output will be augmented each month by 880 tons of old stocks that are certain to be sold so long as high prices prevail.

As previously pointed out, the statistical position favors the manipulation for higher prices, but there is a limit to all things, and a market cannot be advanced the way the tin market has recently been advanced without creating technical weaknesses which will have to be reckoned on later.

ZINC IN NOVEMBER

The market for slab zinc throughout November showed slight fluctuations, the extreme range being within ¼ cent per pound between 6.25c and 6.45c East St. Louis basis for Prime Western.

The price of Prime Western at the beginning of the month was 6.35c East St. Louis basis, and at the end of November the market had regained the same level.

Domestic demand showed some improvement over October and the buying was mainly of a hand-to-mouth character for early shipment. The amount contracted for by consumers for delivery into the new year appears to have been smaller than usual at this season, an evidence of continued conservatism. Buyers' caution was probably intensified by the statistical position as seen in October, which showed for that month an output of nearly 10,000 tons above the October domestic shipments.

The statistics for November again showed an increase in stocks in smelters' hands of 5,117 tons. The production was 44,280 tons, an increase of 2,182 tons over October. The total shipments were 39,163 tons (about the same as October), but of these the domestic shipments were 37,040 tons, an increase in domestic shipments over October of 5,814 tons. The falling off in shipments was due to lessened export, of which 2,123 tons were shipped in November as against 6,978 in October.

The favorable item in the foregoing is the increase in domestic shipments.

The foreign market during November was constantly out of reach for export business, though near enough to exercise some influence on prices here according to London quotations and the rate of sterling exchange. The latter was a potent factor, for as against a rate of about $4.48 early in November, sterling had weakened to about $4.30 in mid-November and at the end of the month was around $4.34.

The prospects for further foreign buying in this market were hopeful, for the English galvanizers are reported very

busy, with large engagements for sheets well into next year, and the stocks of slab zinc available from the continent promise to be inadequate for British needs.

Zinc ore remained firm througout the month, the price ranging from $40.00 to $42.00 per ton. The output of the mines was curtailed by another shut-down of one week, continuing the policy practiced in October, and the principal stocks of ore are closely controlled.

SLAB ZINC STATISTICS FOR NOVEMBER.

All grades, ton = 2,000 lbs.

Stock on hand Nov. 1st		25,787
Produced in November		44,280
Total		70,067
Shipped during November:		
Domestic	37,040	
Export	2,123	
		39,163
Stock on hand Nov. 30th		30,904
Increase in stocks		5,117
Number of retorts in operation end of November		84,906

U. S. ZINC STATISTICS.

From the monthly reports of the American Zinc Institute, in tons of 2,000 lbs.

	Production		Deliveries	
	1923.	1922.	1923.	1922.
Jan. ..	46,317	25,916	47,995	21,021
Feb. ..	42,443	22,513	48,153	24,067
Mar. ..	48,731	26,532	49,574	30,394
April .	46,866	25,506	47,911	34,040
May ..	47,347	27,419	43,304	38,738
June ..	42,840	28,547	38,686	39,380
July ...	43,065	31,917	38,998	32,875
Aug. ..	41,625	31,423	36,394	38,412
Sept ..	39,105	33,134	42,683	35,957
Oct. ..	42,093	39,940	39,204	40,703
Nov. ..	.....	40,200	.....	38,746
Dec. ..	.....	42,841	.....	44,086
Total	.....	373,678	.....	422,034

	Stocks at Smelters*		Retorts in Operation*	
	1923.	1922.	1923.	1922.
Jan. ..	16,574	65,678	84,131	44,457
Feb. ..	10,864	64,124	86,931	43,357
Mar. ..	10,021	60,262	89,054	45,373
April .	8,976	51,728	89,203	42,773
May ..	13,019	40,409	86,731	48,765
June ..	17,173	29,576	84,455	52,677
July ..	21,240	28,618	82,075	54,909
Aug. ..	26,471	21,629	75,325	57,193
Sept. ..	22,893	18,806	81,849	65,936
Oct. ..	25,787	18,043	84,559	72,116
Nov. ..	.....	19,947	.....	75,664
Dec. ..	.....	18,252	.....	80,863

* At the end of month.

JOPLIN ZINC AND LEAD ORE

Review for November, 1923.

Shipments for the month of November were large, being the second largest during the year. The shipments aggregated 67,842 tons at an average price for the month of $40.95, making a total of $2,778,370. The month opened with an average price of $40.50, advanced to $41.50 and closed at $40.00. The market one year ago varied within the limits of $43.50 to $48.00, which was the highest average during the year. The total shipments one year ago were 48,742 tons.

The lead ore market showed a decline all during the month. The month opened with $82.00, dropped to $81.00 and closed at $79.00. A total of 6,520 tons of lead was shipped during the month, with an average price of $80.32, which compares with an average price of $92.00 for the same period last year.

Stocks of surplus zinc ore held by the zinc ore producers is now less than 50,000 tons for the first time in over two years.

So far this year twelve new properties have been opened up and mills built upon them. A few properties have closed down definitely, one of these being the

PRIME WESTERN ZINC PRICES.

Average Prices, East St. Louis Basis.

	1923	1922	1921	1920	1919	1918
Jan. .	6.96	4.71	5.44	9.22	7.12	7.71
Feb. .	7.25	4.50	4.95	8.82	6.37	7.73
Mar. .	7.87	4.65	4 73	8.62	6.18	7.42
Apr. .	7.32	4.91	4.75	8.26	6.16	6.81
May .	6.72	5.10	4.86	7.72	6.11	7.14
June .	6.05	5.35	4.44	7.58	6.57	7.85
July .	6.09	5.77	4.27	7.82	7.56	8.43
Aug. .	6.35	6.24	4.19	7.95	7.50	8.73
Sept. .	6.46	6.56	4.25	7.77	7.20	9.31
Oct. ..	6.30	6.85	4.61	7.25	7.49	8.77
Nov. .	6.35	7.14	4.68	6.37	7.83	8.39
Dec. .	....	7.12	4.85	5.84	8.40	8.21
Av. ...	....	5.74	4.67	7.77	7.04	8.04

WATERBURY ZINC AVERAGES.

	1923	1922	1921	1920	1919	1918
Jan. ..	8.00	5.25	6.05	9.75	9.00	9.60
Feb. ..	8.00	5.00	5.50	9.40	8.10	9.60
Mar. ..	8.70	5.10	5.25	9.15	8.00	9.40
Apr. ..	8.25	5.40	5.20	8.85	6.90	8.50
May ..	7.60	5.55	5.30	8.30	6.80	8.95
June .	7.00	5.85	5.00	8.15	7.25	9.50
July ..	6.80	6.20	4.80	8.45	8.10	10.30
Aug. ..	7.10	6.50	4.70	8.55	8.15	10.45
Sept. .	7.30	7.10	4.75	8.45	7.85	11.20
Oct. ..	7.10	7.65	5.10	7.50	8.15	10.60
Nov. ..	6.80	7.90	5.15	7.00	8.55	10.20
Dec. .	....	7.90	5.30	6.40	9.05	10.00
Av. ..	....	6.28	5.17½	8.33	8.00	9.86

old Oronogo Circle north of Joplin, upon which is the largest mill in the district, having a capacity of 3,000 tons. Many of the properties in the Tri-State district which were believed to be almost depleted have taken on a new lease on life by the discovery of good ore bodies in remote parts of their leases. If all of the properties in the district were operating on regular schedule and were not observing a curtailment program, it is estimated that the district could very easily make a weekly production of 16,000 tons.

The mines of the district will again close down during the first week in December in accordance with the curtailment plan.

SHEET ZINC PRICE CHANGES

Changes in the base price of Sheet Zinc f.o.b. smelter, with price of Zinc (spelter) East St. Louis, same date:

	Sheet Zinc.	Zinc. (spelter).
1920—		
January 6	12.00	9.43¾
" 15	12.50	9.37½
November 6	11.50	6.80
1921—		
February 9	11.00	5.00
May 17	10.00	4.85
November 14	9.00	4.72½
December 27	8.50	4.82½
1922—		
January 18	8.00	4.72½
March 27	7.50	4.65
July 31	7.75	6.22½
September 11	8.00	6.35
" 28	8.25	6.85
October 7	8.50	6.65
" 27	9.00	7.10
November 13	9.25	7.30
1923—		
January 25	9.00	6.82½
" 30	9.25	7.15
February 23	9.35	7.45
March 2	9.65	7.85
" 20	10.00	8.00
April 30	9.65	6.85
May 15	9.20	6.60
June 26	8.90	5.77½
August 20	9.25	6.45

LEAD IN NOVEMBER

The consumption of lead in November continued on a large and increasing scale. The demand was particularly good from cable and storage battery manufacturers. White lead also showed increasing activity and in fact all lead consuming lines shared in the active condition.

The American Smelting & Refining Company's price at the opening of the month was 6.75c New York, and on November 13th this was advanced to 6.85c.

The producers showed evident desire to restrain the market from undue advances, in many instances limiting their offerings to their regular trade and opposing any apparent over-specifying on the part of their customers beyond known requirements. Speculators were frequently bidding more in the general market than producers were quoting to regular consuming trade.

But the surplus available for early delivery was very limited and producers in many instances were behind in their deliveries, so that the advancing tendency was not to be withstood.

Foreign consumption was also heavy and London prices advanced further during November, opening at £29 for spot,

LEAD AND ZINC PRICES IN NOVEMBER

Day	——LEAD—— New York *	New York †	St. Louis †	London £ s d	——ZINC—— New York	St. Louis §	London £ s d
1	6.75	6.75	6.45	29 0 0	6.70	6.35	33 5 0
2	6.75	6.75	6.45	29 10 0	6.70	6.35	33 5 0
3	6.75	6.75	6.45	.....	....	....	.....
5	6.75	6.75	6.45	30 0 0	6.70	6.35	33 5 0
6	....	....	....	29 15 0	....	....	33 0 0
7	6.75	6.75	6.47½	29 15 0	6.70	6.35	32 12 6
8	6.75	6.75	6.47½	30 0 0	6.72½	6.37½	32 10 0
9	6.75	6.75	6.47½	30 15 0	6.75	6.40	32 17 6
10	6.75	6.75	6.47½	.....	....	....	.....
12	6.75	6.75	6.52½	31 2 6	6.77½	6.42½	33 7 6
13	6.85	6.85	6.60	31 2 6	6.77½	6.42½	33 10 0
14	6.85	6.85	6.67½	31 0 0	6.80	6.45	33 7 6
15	6.85	6.85	6.67½	30 12 6	6.75	6.40	32 15 0
16	6.85	6.85	6.65	30 5 0	6.68¾	6.33¾	32 7 6
17	6.85	6.85	6.65	.....	....	....	.....
19	6.85	6.85	6.65	30 5 0	6.65	6.30	32 7 6
20	6.85	6.85	6.65	30 5 0	6.62½	6.27½	32 5 0
21	6.85	6.85	6.65	30 5 0	6.60	6.25	32 7 6
22	6.85	6.85	6.65	30 5 0	6.62½	6.27½	32 15 0
23	6.85	6.85	6.67½	30 5 0	6.65	6.30	33 0 0
24	6.85	6.85	6.67½	.....	....	....	.....
26	6.85	6.85	6.67½	30 10 0	6.72½	6.37½	33 2 6
27	6.85	6.85	6.67½	30 15 0	6.72½	6.37½	33 7 6
28	6.85	6.85	6.72½	30 15 0	6.72½	6.37½	33 7 6
29	....	....	....	30 12 6	....	....	33 2 6
30	6.85	6.85	6.80	31 0 0	6.72½	6.37½	33 0 0
High	6.85	6.85	6.85	31 2 6	6.80	6.45	33 10 0
Low	6.75	6.75	6.42½	29 0 0	6.60	6.25	32 5 0
Av.	6.81	6.81	6.59	30 7 6	6.70	6.35	32 14 5

* A. S. & R. Co's price.
† Outside market.
§ Prime Western.

and at one time reaching £31 2s 6d, though spot lead in London was for the most part at a premium of £2 to £3 per ton above the three-months' price.

The high foreign price has tended to draw thither supplies of Mexican lead usually available in the form of ore or bullion in this market for melting at seaboard. The position as a whole is one of great intrinsic strength.

LEAD PRICE CHANGES.

The American Smelting & Refining Company's changes in the base price of lead since the beginning of 1922 are given below:

1922—		1923—	
Opening	4.70	Jan. 10	7.50
Mar. 30	4.80	" 22	7.75
April 3	4.90	" 23	8.00
" 7	5.00	Feb. 23	8.10
" 20	5.10	Mar. 1	8.15
" 24	5.25	" 2	8.25
May 16	5.35	April 19	8.00
" 18	5.50	" 28	7.75
" 29	5.65	May 3	7.50
June 7	5.75	" 9	7.25
Aug. 21	5.90	June 21	7.00
Sept. 14	6.00	July 2	6.65
" 19	6.10	" 3	6.50
" 22	6.25	" 5	6.35
" 27	6.35	" 6	6.25
Oct. 6	6.50	" 9	6.10
Nov. 1	6.75	" 10	6.00
" 2	7.00	" 23	6.25
" 24	7.10	" 27	6.50
Dec. 19	7.25	Aug. 27	6.75
1923—		Sept. 13	6.85
Jan. 9	7.40	Oct. 25	6.75
		Nov. 13	6.85

LEAD PRICES, ST. LOUIS.

Average Prices, East St. Louis Basis.

	1923.	1922.	1921.	1920.	1919.
Jan.	7.64	4.40	4.78	8.32	5.36
Feb.	8.16	4.40	4.29	8.62	4.83
Mar.	8.33	4.43	4.03	8.93	5.01
April	8.03	4.97	4.30	8.71	4.87
May	7.12	5.30	4.82	8.52	4.80
June	6.88	5.58	4.34	8.36	5.06
July	6.13	5.45	4.28	8.58	5.42
Aug.	6.51	5.55	4.23	8.89	5.60
Sept.	6.74	5.90	4.41	8.23	5.81
Oct.	6.59	6.36	4.47	7.08	6.22
Nov.	6.59	6.88	4.38	6.16	6.68
Dec.	....	6.99	4.40	4.75	6.96
Year	....	5.52	4.39	7.93	5.55

Annual Averages.

1918	7.25	1913	4.26
1917	8.92	1912	4.38
1916	6.80	1911	4.31
1915	4.57	1910	4.33
1914	3.74	1909	4.10

ANTIMONY IN NOVEMBER

The advance seen in October was continued in the early part of November, the price of Chinese 99% spot New York progressing from 8.87½c at the beginning of November, until on the 7th it had reached 9.25c duty paid.

This was caused partly by buying on the part of consumers who had held aloof in the earlier stages of the rise, and found it necessary to cover their requirements.

An additional cause was the report that on account of the civil war in China having interrupted operations in the Hunan Province, importers had been unable to make shipments from China during October of metal booked for that month. On many such contracts sellers were obliged to claim extension under "force majeure" privileges. This seemed likely to bring about a condition of limited supply for delivery this side of February, and there was active trading in lots actually afloat.

Apparently very little Chinese antimony was obtainable from Europe for reshipment hither.

The advance was checked by profit-taking on resale parcels, and the demand slackening, the market subsided till at the end of November spot antimony was offered at 8.80c New York.

The month closed with a dull market, but some importing interests, still entertaining strong opinions to the value of early supplies, withheld quotations in

ANTIMONY PRICES.

Prices for Chinese and Japanese antimony (ordinary grades) in New York.

	1923	1922	1921	1920	1919	1918
Jan.	6.81	4.45	5.22	10.53	7.59	14.23
Feb.	7.20	4.38	5.23	11.55	7.24	13.67
Mar.	8.75	4.25	5.30	10.97	6.83	13.12
April	8.38	4.88	5.15	10.45	6.82	12.52
May	7.43	5.42	5.25	9.44	7.56	12.41
June	6.84	5.13	5.06	7.93	8.37	12.99
July	7.05	5.08	4.68	7.43	8.81	13.18
Aug.	7.67	5.29	4.55	7.04	8.92	13.81
Sept.	7.52	6.43	4.53	7.10	8.53	13.93
Oct.	7.82	6.80	4.94	6.62	8.60	13.44
Nov.	9.03	6.54	4.66	6.05	9.06	9.10
Dec.	....	6.35	4.51	5.46	9.56	8.19
Av.	....	5.42	4.92	8.38	8.16	12.55

Annual Averages.

1917	20.73	1913	7.45
1916	25.33	1912	7.68
1915	29.52	1911	7.48
1914	8.53	1910	7.27

expectation of comparative shortage later on.

The price named in the Chinese market at the end of November, for December-January shipment was 6.50c c.i.f. New York in bond.

ALUMINUM IN NOVEMBER

Interest in aluminum in November was largely centered in placing of contracts for first half and the whole of 1924. Some time since it was reported that contracts for next year had been taken by the large domestic producer at 25c. a pound delivered. This was followed by reports that 26c. had been paid and about the middle of November it is claimed that some virgin ingots, 99% plus were sold as high as 27c. a pound delivered and 98% to 99% at 26c. a pound. Both British and Swiss makers are reported to have taken some American business but no French or German aluminum was available for American importation. The Norwegian plant which took considerable business here in the first half of 1923 is said to be controlled by an American interest as was reported some months ago.

There seems to be reason to believe that some large consumers can still obtain aluminum ingots for 1924 shipment at 26c. for 99% and at 25c. delivered for 98% to 99% metal.

The demand for small lots for early shipment increased somewhat toward the end of November. The increased making of aluminum castings by automobile manufacturers for next Spring's use was held responsible for the stronger feeling. The larger output of closed cars was also a factor in larger sales of both ingots and sheets for late delivery.

In the Detroit market as high as 28c. was reported to have been paid for 99% and 27.50c. for 98% to 99%.

These prices are understood to prevail for small lots.

In the New York market virgin ingot aluminum 99% plus is now quotable at 27c. to 27.50c. delivered and 98% to 99% ingots at 26c. to 26.50c. Remelted 98% to 99% is held at 23c. to 24c. and No. 12 alloy at 20c. to 21c. a pound.

ALUMINUM, ANTIMONY, SILVER AND STERLING EXCHANGE

QUOTATIONS IN NOVEMBER

Day	Aluminum	Antimony	Silver — N. Y.	Silver — London.	Sterling Exch.
1	25.25	8.87½	.63⅜	30 15/16	4.47⅞
2	25.25	9.00	.63	31¾	4.46⅛
3	.....	....	.63	32	....
5	25.25	9.12½	.63⅝	32 1/16	4.46¼
6	.....	....	...	32 1/16	....
7	25.25	9.25	.63⅜	32	4.45⅜
8	25.25	9.25	.63½	32⅛	4.43¾
9	25.25	9.25	.63¼	32 3/16	4.40¼
10	.....	....	.63⅜	32 2/16	....
12	25.25	9.25	.64⅛	33 1/16	4.37
13	25.25	9.25	.64⅝	33 3/16	4.37½
14	25.25	9.12½	.63⅝	32½	4.33¾
15	26.25	9.12½	.63¼	32⅜	4.33¾
16	26.25	9.00	.63⅜	32⅞	4.30¾
17	.....	....	.63¾	33 3/16	....
19	26.25	9.00	.64	33⅝	4.34½
20	26.25	9.00	.63⅞	33¼	4.32⅞
21	26.25	8.92½	.64⅜	33 5/16	4.37¾
22	26.25	8.90	.64½	32⅝	4.37¾
23	26.25	8.90	.64¼	33	4.37⅛
24	.....	....	.64½	33 3/16	....
26	26.25	8.87½	.64½	33⅛	4.38½
27	26.25	8.87½	.64	32½	4.37¼
28	26.25	8.85	.64⅛	33 1/16	4.35½
29	.....	....	...	33¼	....
30	26.25	8.80	.64⅜	33 1/16	4.33¼
High	26.50	9.25	.64⅝	33⅝	4.47⅞
Low	25.00	8.75	.63	31¾	4.30¾
Av'ge	25.80	9.03	.6382	32.72	....

ALUMINUM PRICES.

Open market quotations on virgin aluminum 98-99% pure, in New York.

	1923.	1922.	1921.	1920.	1919.
Jan. ...	22.75	17.74	22.86	32.00	33.10
Feb. ...	23.25	17.33	24.50	31.83	32.26
Mar. ...	24.95	17.52	23.44	31.50	29.81
Apr. ...	26.00	18.06	23.25	31.61	30.67
May ...	26.24	17.92	23.06	31.95	32.21
June ...	26.25	17.87	22.75	32.00	32.83
July ...	26.25	17.87	22.62	32.00	32.57
Aug. ...	26.07	17.87	20.22	32.21	32.23
Sept. ...	25.50	18.26	19.02	31.44	32.50
Oct. ...	25.50	20.51	17.85	29.12	32.56
Nov. ...	25.80	21.66	17.50	27.80	32.50
Dec. ...	.....	22.52	17.50	23.83	32.48
Av.	.....	18.68	21.21	30.61	32.14

NICKEL IN NOVEMBER

Manufacturers of nickel have been more actively canvassing consumers in regard to their requirements for 1924.

It will be recalled that at the beginning of 1923 some large contracts for ingots were closed at 25c to 26c a pound.

It is estimated that about 90% of ingot consumers covered their requirements for this year in January and February. During the remainder of the year sales were confined to relatively small lots at prices ranging from 28c to 32c a pound. Shipments against con-

tracts for this year have been generally satisfied.

Surplus stocks which had accumulated were steadily worked off and production was increased, both in the United States and Canada. Recently as contract obligations have been eliminated, there has been some decrease in production in the United States but Canadian manufacturers have continued to run close to full capacity.

Apparently the tone of the market is somewhat firmer today than it was when yearly contracts were entered into early in the year. In some instances ingot contracts for 1924 shipment have been closed at slightly above the prices that were made last January and February which it is assumed must be in the neighborhood of 26c a pound while relatively small lots have been selling at 27c to 29c a pound in the last month or so. Considerable activity is expected to be developed in the next thirty to sixty days.

QUICKSILVER IN NOVEMBER

Buying of quicksilver in November was largely confined to small lots, that is, one, two and five-flask lots. An occasional sale of a round lot, that is a 25-flask lot, was made toward the end of the month at $60.75 to $61.00 per flask. Small lots were sold at $61.50 per flask; that is, the market receded about $1.00 a flask as compared with the end of October but there was no pressure to sell.

It is estimated that importations in November aggregated about 2,000 flasks, including two lots of 500 flasks each. Most of this metal was applied against contracts previously made. Few if any of the large consumers were in the market, having fully covered requirements in the previous 60 days. The powder and mercurial manufacturers have been out of the market recently but color makers have made a few purchases and there has been a fair jobbing trade in small lots.

Recent importations have been almost entirely from Italy but there have been few if any purchases in the last month for importation as the foreign market has continued above the American parity. At the close of November Italian holders were asking the equivalent of $62.50 per flask and the London market was still maintained at £9 10s, also being considerably above the American parity. Spain, although having disposed of most of its accumulation, has made a few small sales for American shipment.

The jobbing trade has recently made a few purchases but furriers have been conspicuous by their absence from the market. At the beginning of December the market was very quiet with the outlook not specially encouraging for activity during the remainder of the year.

PLATINUM IN NOVEMBER

The higher prices for platinum which were developed early in November were well maintained throughout the month but the activity which prevailed for a few days gave place to light buying.

For several weeks business was largely confined to retail lots.

The so-called official price remained $125.00 an ounce and small lots sold at this level, but the wholesale market was $2.00 to $3.00 an ounce less, a few sales being made at $122.00 to $123.00 an ounce.

The fact that foreign markets were more active and prices were higher, accounts for the relatively small importations of crude in this market recently and also for the higher prices prevailing here.

Crude was available at $118.00 to $120.00 an ounce, but refiners were reluctant buyers at this price. A month ago crude was selling in this market at about $115.00 an ounce.

Market for refined has been stagnant for the last ten days, probably because of the higher prices asked but with the beginning of December there was some little increase in interest shown by large as well as by small buyers. Wholesale buyers are reluctant to buy at $122.00 for soft. Medium grades are held at $125.00 to $127.00 and hard at $136.00 an ounce.

Palladium has sympathized with platinum, asking prices being $2.00 to $3.00 an ounce higher. Prices range from $80.00 to $82.00 an ounce, the outside price for small lots. Iridium has remained quiet but steady, prices ranging from $285.00 to $300.00 an ounce.

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